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SUGGESTIONS FOR THE PREVENTION OF POST-OPERATIVE THROMBOSIS AND EMBOLISM.

BY

FREDERICK McCANN, M.D.EDIN., F.R.C.S.ENG.,

SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN, LONDON.

THE spectre of death from embolism still haunts the path of the operating surgeon. These sudden surgical tragedies, although less numerous than in former times, still occur in the practice of surgeons—good, bad, and indifferent—in every country, after "clean and unclean cases," after short operations and long operations, after easy operations or after those attended with complications, whether performed on the young or on the aged. The cause, closely linked as it is with that of thrombosis, is variously ascribed to the blood being infected with bacteria, to the recumbent posture, to the anatomical situation of the affected vein, and lastly, to the quality of the blood.

All these are no doubt contributory, or, in the language of the textbooks, "predisposing" causes. Is there not something more? Does the fault not lie in the technique employed? I believe it does, and that the chief fault is expressed by the one word "transfixion."

There must be some common error in the practice of operative surgery to account for these fatalities, otherwise their number would ere now have been reduced to vanishing point. Some surgeons have had the courage to place them on record, others remain silent. Statistics have been furnished from the Mayo Clinic in Rochester, U.S.A., which give some idea of the frequency of post-operative thrombosis and embolism. Thus E. H. Beckman[1] writes that in 5,835 surgical operations the total number of cases of phlebitis was 16. He says:

> Although we continually have a certain number of phlebitis cases following operation, we have not been able to determine any causative factor in this annoying complication. . . . We are often surprised to find a phlebitis develop in a patient who has otherwise had an ideal convalescence. In only one of the present series was there an infected wound.

Appendicectomy	1 left,	1 right
Appendicectomy, curettage and perineorrhaphy	1 left	
Cholecystostomy, internal Alexander curettage	1 left	
Drainage and pelvic abscess	1 left	
Total abdominal hysterectomy	1 left,	1 right
Gastrectomy	1 left	
Cholecystostomy and appendicectomy ...	1 left	
Cholecystectomy	1 left	
Kraske colostomy	1 left	
Tube and ovary appendicectomy ...	1 left	
Ovarian cyst	1 left	
Mayo's operation for prolapse	1 left	
Ventral hernia		1 right
Cholecystostomy		1 right
	12	4

Three-fourths of these cases of phlebitis were in the left femoral or internal saphenous veins and one-fourth in the right. None were double. This is about the usual proportion in our clinic.

L. B. Wilson[2] gives a record of all the cases of fatal post-operative embolism occurring in the Mayo Clinic during the years 1899–1911 inclusive.

During this period 63,573 major operations were performed, with 47 cases of fatal post-operative embolism. Autopsies were made in 41 of the fatal cases.

The fatalities from embolism represent 5 per cent. of the total number of deaths from all causes (864)—that is, 0.07 per cent.

	Deaths.
After 2,372 operations on blood vessels ...	2
,, 3,266 operations on the thyroid	2
,, 2,281 operations on the mouth	1
,, 2,391 operations on the stomach and duodenum	3
,, 4,507 operations on the gall bladder ...	9
,, 389 operations on the small intestine ...	1
,, 9,908 operations on the appendix ...	4
,, 2,530 operations on the colon and rectum	5
,, 4,501 operations for hernia	5
,, 900 operations on the kidney	1
,, 601 operations on the prostate... ...	4
,, 7,993 operations on the uterus, tubes, and ovaries	10

Of the 47 cases, 26 were males and 21 females the youngest 25 years and the oldest 72.

19 of the fatalities occurred within the first week; 21 occurred within the second week; 4 in the third week; and one each on the twenty-sixth, thirtieth, and sixty-fourth days.

In 36 cases the embolism was pulmonary, in 10 cerebral, and in 1 coronary.

In 28 of the 41 cases examined *post mortem* the primary thrombus was located in the field of operation or in the femoral veins; in 4 cases the emboli were probably cardiac; in 9 cases the seat of origin was not determined.

Such is the story to be elicited from a large series of operations. Gall bladder operations and operations on the female genitalia furnish the largest number of deaths—0.19 per cent. and 0.13 per cent. respectively. Disintegration of the blood corpuscles from toxic substances is held to explain the high percentage following operations on the gall bladder.

Although sepsis is a most important factor in causation, yet intravascular clotting apart from sepsis does occur.

Still, it is the improvement in surgical technique, especially in the direction of combating sepsis, which has helped to reduce the number of cases of post-operative thrombosis and embolism. Who can be sure that complete asepsis has been attained during an operation or the subsequent convalescence? It is assumed when all goes well, but it is not proven. Indeed, it is much more difficult to exclude the septic element in any consideration of this subject than many writers would have us believe. In spite of elaborate precautions post-operative thrombosis and embolism still remain.

Ten years ago a woman who had undergone vaginal hysterectomy for uterine cancer, when sitting up in bed twelve days after the operation suddenly fell back dead. Her death was due to pulmonary embolism. This was an operation done by the old method of transfixion and ligature of the broad ligaments, healing, as all these operations healed, with varying degrees of sepsis, typical conditions for the development of post-operative thrombosis and embolism.

Further, statistics favoured the view that thrombosis and embolism more frequently followed operation on the female genitalia than in other situations. This preponderance was explained by the nature of the tissue involved, but I came to the conclusion that the operative technique must also be at fault.

I therefore determined to give up transfixion and to operate anatomically, picking up vessels cleanly and ligaturing them without encompassing masses of tissue. The result has been that I have never had another case of post-operative embolism or thrombosis either in my private or hospital practice.

Dangers of Transfixion.

Let me now draw attention to the application of the method in abdominal and pelvic surgery.

"Never transfix a vascular area" should become a surgical axiom. By transfixion vessels are liable to be punctured and bleed either externally or into the tissues; the transfixing ligature is tied to arrest the bleeding, and the result may be that the ligature remains in the lumen of the vessel.

Now, if this ligature is of doubtful asepticity or becomes subsequently infected, the natural process of clotting in the vessel may be arrested, the clot liquefying and becoming detached in portions or in its entirety. I use the word "may," for it is really remarkable that thrombosis and embolism are not more frequent. Although the diminution of sepsis has been a great factor in improving results, yet it is worthy of note that it is not the severe infections that are followed by these troublesome complications, but rather those of a milder type. If a vessel has been punctured the ligature should be withdrawn and the vessel clamped and tied after removal of the blood clot. Again, in the tying of blood vessels, even those of small size, it is surprising to witness the amount of "muscle" some surgeons put into this part of an operation. The object of a ligature is to approximate the coats of a vessel and to keep them in apposition, not to cut them. As the success of the modern abdominal surgeon depends so much on his capacity to tie and stitch properly, it is necessary for him to cultivate a delicacy of touch so that ligatures and sutures are nicely and accurately adjusted without undue constriction. He must further acquire the art of using thin material without breaking it, for the fault more frequently lies with the surgeon than with the material.

Pedicle needles have served their purpose and should be given up. The large sharp curved needle is a dangerous weapon. Round-bodied needles should alone be used within the abdominal cavity, and in order that they may be held easily I have had them made with the posterior half flat. The employment of the round-bodied needle constitutes a distinct advance in surgical technique. Its advantages are evidenced, for example, in stitching the uterus, where little or no bleeding results from the passage of the needle. Death from embolism has followed such a simple operation as utero-suspension. Was a cutting needle used?

There are certain situations in the abdomen where transfixion is frequently employed—namely, the broad ligaments, the omentum, and the mesentery.

The Broad Ligaments.—Transfixion of the broad ligaments is a most dangerous proceeding. These ligaments contain between their layers a venous plexus specially well developed in the presence of uterine new growths and liable to be injured by the transfixing needle. In this situation it is easy to operate anatomically, to open up the broad ligaments, and to tie the vessels separately with thin material. "Chunks" of tissue should not be left ligatured with thick material liable to cause post-operative pain and maybe thrombosis.

The Omentum.—I believe the method of ligaturing the omentum by transfixion and interlocking sutures, as generally taught and practised, to be dangerous and a cause of post-operative thrombosis and embolism. It may be argued that the needle can be passed through an avascular spot. Do all operators take this trouble? Vessels in the omentum should be caught with forceps and tied, the same technique being employed when a portion is excised.

The Mesentery.—Here, again, transfixion is dangerous, and it is easy where a portion of mesentery is excised to catch the bleeding points, and to tie them and to approximate the two edges by tying over forceps instead of stitching. Transfixing the mesentery of the appendix with a needle and puncturing vessels may easily lead to thrombosis and embolism. Deaths from this cause after a simple appendix operation are by no means so rare. The "patches of pneumonia" and localized pleurisy seen after this and other operations are most probably embolic in origin. Puncturing veins in the wall of the caecum may be another cause of thrombosis. The use of a small curved round-bodied needle, avoiding blood vessels, should prevent such an accident when covering the appendix stump.

Stomach and Intestine.—It is important also to avoid puncturing vessels in the walls of the stomach and intestine during gastric and intestinal operations. The extravasated blood in the bowel wall may easily become infected and break down.

Abdominal Wall.—Care exercised in making the incisions in the proper positions and respect for the anatomical arrangement of the structures will prevent accidents in this situation. The deep epigastric vessels may be injured unless sought for and avoided when making lateral incisions in the abdominal wall. If the injury is not discovered a troublesome haematoma may result. Moreover, in using through-and-through sutures it is better to employ a figure of 8 suture whose track can be seen and followed rather than to thrust a needle blindly into the abdominal wall, and puncture a vessel or vessels. Accurate haemostasis in the abdominal walls, as in all other situations, is most essential, so that no clots are left which may subsequently become infected.

Summary.

(*a*) Do not transfix or puncture blood vessels.

(*b*) Do not tie or stitch too tightly and cut into blood vessels.

(*c*) Obtain accurate haemostasis, leaving no blood clots.

If by attention to improvements in technique these post-operative fatalities can be still further reduced, "'tis a consummation devoutly to be wished." For this purpose neat, clean workmanship, founded on sound anatomical knowledge, is required. There is still scope for the surgical artist.

REFERENCES.

[1] *Annals of Surgery*, i, May, 1913. [2] Ibid., December, 1912.

MYOMECTOMY OR HYSTERECTOMY.

BY

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IN the treatment of uterine fibroids myomectomy has had a very limited application as compared with hysterectomy. The positive indications for the former, as against the latter operation have been a single tumour in a patient under 40 years of age either pedunculated, or at least not deeply embedded in the uterus, and not giving rise to excessive menstrual bleeding. It is now, however, in most cases possible, and I hold in many cases proper, to carry out the conservative operation though all these criteria are traversed.

The drawbacks that have been urged against removing the tumour or tumours and leaving the uterus are, first, that where the leading symptom is menorrhagia the haemorrhage may continue after the operation; secondly, that other tumours may arise either *de novo* or from overlooked seedlings; thirdly, that the likelihood of pregnancy in the conserved uterus is small, and that in the event of its happening the uterine scar may give way; and, fourthly, that the operation is frequently more difficult than hysterectomy while its risk is at least as great and often greater.

There are, of course, certain cases in which the propriety of removing the uterus is in no doubt: elderly women with large and multiple tumours; cases in which the anaemia is so extreme that any further loss of blood, even the amount of a normal menstrual period, is undesirable; inflamed or degenerate tumours, or large tumours growing in the supravaginal cervix. But besides these there is a considerable class of relatively young patients who, having fibroids in the womb, seek advice on account of menorrhagia, dysmenorrhoea, or abdomino-pelvic pain. It is in this type of case that myomectomy is artistry and hysterectomy crudity.

Let us examine the drawbacks that have been alleged against myomectomy and see if they are as cogent to-day.

CONTINUANCE OF MENORRHAGIA.

If excessive menstrual loss continues after myomectomy, it is due either (*a*) to a small submucous fibroid missed at the operation; (*b*) to endometrial thickening; (*c*) to the fact that the uterus has remained much hypertrophied although all the tumours have been removed; or (*d*) to a degenerate condition of the uterine wall.

(*a*) *A Missed Submucous Fibroid.*—It is easily possible to miss a small submucous fibroid, say the size of a pea, if the uterine cavity is not opened and inspected in the course of the operation, for so diminutive a tumour is with difficulty felt through the uterine wall. Hence the surgeon should as a routine open the cavity in most cases, and should make it an invariable rule to do so in every one where menorrhagia is complained of. I have frequently detected and removed in this way a little nodule which, if overlooked, would have defeated the whole object of the operation. The opening of the cavity in an uninfected case (and in none other should myomectomy be attempted) adds no risk to the operation.

(*b*) *Endometrial Thickening.*—In certain cases of fibroids diffuse thickening of the endometrium is present, whilst in others a local overgrowth in the form of a mucous polypus exists. Both abnormalities, if not dealt with, will maintain haemorrhage after the operation. An opening into the uterine cavity discloses them. Curettage is far more efficiently performed by this route than *via* the cervix, and a sharp scoop is the best instrument to use. A mucous polypus should be similarly ablated, special attention being paid to the cornua. On several occasions I have found and removed a polypus situated in one of these recesses.

(*c*) *Hypertrophy of the Uterus.*—With all interstitial and submucous fibroids of any size hypertrophy of the uterus enclosing them necessarily coexists. The condition is, indeed, in this particular exactly analogous to pregnancy. Involution takes place after myomectomy just as it does after labour, but is more apt to be incomplete, and such subinvolution will cause menorrhagia to persist. It is necessary, therefore, in these cases not merely to remove the tumours but to trim down the uterus to a reasonable

size. This is done by cutting away the redundant capsule of hypertrophied muscle tissue or even a segment of the uterine wall down to and including part of the mucosa.

(*d*) *Degeneration of the Uterine Wall.*—The degenerative states of the uterine wall included under the term "fibrosis" may coexist with fibroids, and in such cases hysterectomy should be performed, not myomectomy. The conjunction, however, is a rare one, the uterine musculature over a fibroid being, as a rule, conspicuously well developed. A smooth, flabby appearance of the uterine wall in a case marked by menorrhagia, especially if there is no enlargement of the cavity, suggests that "fibrosis" is the cause of the haemorrhage rather than the fibroids, and should determine the removal of the uterus.

Recurrence of Tumours.

That new fibroids do occasionally form after myomectomy is undeniable, but I believe that the large majority of reappearances have their origin in small tumours overlooked at the time of the operation, for the more thoroughly it is performed the rarer are such apparent recurrences. Only on one occasion can I remember having to remove the uterus subsequently on this account.

Future Pregnancy.

Noble, from an investigation of a large number of cases of myomectomy, stated that only 10 per cent. conceived after the operation.

Such general figures must not, however, be taken at their face value; for many of the patients are over 40, and the bulk of them over 35, whilst a good proportion are unmarried. Moreover, it is undoubted that the larger number of myomectomies are performed either on unmarried or sterile married women; on the first group in order to leave them not less fit for marriage, and on the second so as to maintain intact their capability for childbearing in so far as they may be capable. Both these groups are relatively infertile. On the other hand, the fact that a woman has already borne children frequently determines the removal of the uterus, on the ground that she has had children and does not want any more. If the present practice was reversed, and myomectomy was more particularly performed on women of proved fertility, a much larger number of pregnancies would follow the operation than at present obtains.

The fear that the uterus after myomectomy will not stand the strain of pregnancy is groundless. There is probably no tissue in the body that heals so perfectly as the uterine muscle. I have had several opportunities now of viewing through an abdominal incision the after-results of this operation, and on no occasion could a trace be seen of the incisions in the uterine wall. This is in keeping with what one finds when performing Caesarean section on a woman who has previously been delivered through the abdomen.

Some years ago a patient was sent to me for the purpose of hysterectomy on account of large fibroids complicated by pregnancy. I tided her through till term and then delivered her *via* the abdomen, not only of a fine child, but of five large fibroids as well, varying in size from a melon to an orange. The tumours were deeply embedded and the uterine cavity was opened altogether in three places. A year later she again became pregnant, and at her request I repeated the Caesarean section when she reached term. I could find no trace of my six previous incisions, the uterus being absolutely normal.

No time is so favourable for removal of a fibroid as immediately after the uterus has been delivered by Caesarean section, for the retractile and supple state of the uterine wall minimizes the haemorrhage and makes suturing particularly easy.

In the operation of utriculoplasty a wedge-shaped portion of the uterus is excised and the lessened organ sutured, with the object of reducing the "menstrual area." The first patient on whom I performed this operation conceived three times subsequently, and on each occasion delivery by the vagina was successfully accomplished, a fact which strikingly illustrates the reparative power of the uterine wall.

The Risk of Myomectomy as compared with Hysterectomy.

The risk specially attaching to myomectomy as compared with hysterectomy is haemorrhage either during or after the operation. There can be no question that the amount of blood lost during an extensive enucleation is considerably more than would be the case if the uterus was removed with the fibroids. Nevertheless, by correct technique the amount can be kept well within the limits of safety. The tumours should be enucleated, and the beds from which they came obliterated by suture one at a time. There should be no delay in inserting the interrupted mattress sutures that effect haemostasis, and if these are insufficient a continuous mattress suture should be inserted between the interrupted mattress sutures and the continuous superficial suture that approximates the peritoneal coat. The whole of the proceedings should be carried through quickly. Where the uterus is very vascular the ovarian vessels should be temporarily clamped with ring forceps, and in exceptional cases the uterine vessels may be similarly controlled.

A much more important risk to guard against than immediate bleeding is post-operative oozing from the uterine incisions. If this occurs not only is convalescence rendered febrile, but there is a very definite danger of a coil of intestine adhering to the clot-covered uterus and causing intestinal obstruction. This, the chief danger of myomectomy, can be prevented, first, by ensuring complete haemostasis before closing the abdominal wound; secondly, by whenever possible incising the uterus through its *anterior wall* so that the suture line presents towards the bladder instead of towards the intestines; and thirdly, by (in some cases) ventrosuspending the uterus to the anterior abdominal wall along the line of the uterine incision. Ventrosuspension has also this advantage, that it prevents the diminished organ from retroverting, which it is very apt to do after the fibroids have been removed. In many instances retroversion by the weight or pressure of the tumours is already present, and should be corrected by shortening the round ligaments, or, in the event of additional defence against post-operative oozing from an anterior incision being required, by ventrosuspension.

If the precautions thus detailed be taken the average risk of myomectomy is probably about the same as hysterectomy under corresponding circumstances. There are certain cases, still within the justifiable limits of myomectomy, where, on account of the size and multiplicity of the tumours, the risk is somewhat greater. In such the pros and cons of the alternative operations must be carefully weighed, the surgeon always reserving to himself the right of final judgement on the operating table.

The Worth of the Conserved Uterus.

Removal of the uterus, if the ovaries are conserved, does not produce a climacteric, though, in the opinion of some, it tends to accelerate its normal advent; but in certain women the disappearance of the monthly loss does seem to produce congestive sensations, less in degree but similar to the "flushings" that mark "the change."

Removal of the uterine body alone only unfits a woman for marriage in so far as it renders her absolutely infertile, but total hysterectomy has the disadvantage of removing what, in some individuals, is an erotogenic zone, namely, the vaginal cervix.

The conceptional value of the uterus in women still of childbearing age who have grown fibroids is less than that of similarly aged normal women even after the fibroids have been removed, because the agent, whatever it be, that makes for myomatous growth also makes for sterility. The actual comparative ratio is, however, not determinable on account of the reasons previously given.

Apart, however, from its physical value the womb has for most women a sentimental value, which, however illogical, cannot be lightly dismissed; and amongst patients on whom hysterectomy has been performed there are probably more than the surgeon thinks at the back of whose minds dwells abiding regret and rebellion against fate.

Conclusion.

The outcome of these considerations and the experience on which they are founded has convinced me that the practice of myomectomy as an alternative to hysterectomy should be considerably extended. I now frequently perform the conservative operation with complete success where a few years ago I should have removed the uterus.

When the tumours are small or of moderate size, the proceeding can be carried out very well through a

transverse incision across the pubic hair field. This is a great advantage in relatively young women, especially if unmarried, for it leaves no visible scar. To send a woman back to daily life without mark or blemish, cured of a serious disability and danger, is an achievement of high artistry.

LAMINECTOMY FOR GUNSHOT WOUND.

With a Record of Three Successful Cases.

BY

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Surgeons who have had a large experience of the spinal injuries of industrial practice cannot help being impressed by the high proportion of severe and inoperable cases found in comparison with the condition of things in war surgery. The reason for this difference is not far to seek. The coal mines furnish a large proportion of these cases, and the causal agent is so massive (a fall of roof in the pit, for example) that the lesion is necessarily widespread whether caused by direct or indirect violence. In gunshot wounds, on the other hand, a larger proportion of incomplete injuries is seen, and these are due to small missiles which, though they hit the spine, do not often make a direct hit upon the theca. When the theca is directly hit the lesion is complete in all senses of the term, and it is scarcely conceivable that even a part of the theca could be hit without causing such profound changes in the remainder of the segment as to cause, or at any rate initiate, a "complete" lesion.

Complete and Incomplete Lesions.

Complete gunshot lesions of the spine are due to direct hit of the theca, either by the missile itself or by the driving in of a part of the spine. Such cases show a complete interruption in the tracts of the cord—evinced by flaccid paralysis and loss of reflexes and sphincter control. If the theca be exposed by operation gross damage will usually be found, but occasionally the cord will appear uninjured (as has happened in my experience) and yet be completely and irrecoverably damaged.

In incomplete injuries, on the other hand, the missile hits the spinal column, but the theca is not hit either by the missile or by displaced bone, and the resulting paraplegia—

(1) May be quite transitory and flaccid, but apparently complete;
(2) May or may not have a transitory period of flaccidity and completeness, merging more or less rapidly into a spastic condition of any degree;
(3) May only appear after an interval.

The pathological conditions underlying these three possibilities are pressure or irritation caused by effusion (intraspinal, subdural, or intramedullary), by granulation tissue in relation to a sinus or a retained missile, or by callus; with or without a preliminary condition of concussion. Incomplete lesions include a large proportion of conditions that hold out good hope of recovery, either spontaneously when the paraplegia is due to concussion, or in some cases to effusion, or after operation when a definite lesion is present. The indications for operation are so evident in cases of paraplegia arising after an interval that they require no discussion. When, however, a spastic paraplegia is present from the beginning the question whether or not to operate may be very difficult.

The indications for operation given by Sir George Makins from experiences in the South African campaign are so helpful and explicit that I will venture to quote them:

1. Excessive pain in the area above the paralysed segment; operation is here of doubtful practical use except in so far as it relieves the immediate suffering of the patient.
2. An incomplete or recovering lesion, when such is accompanied by evidence furnished by the position of wounds, pain and signs of irritation, of pressure from without, or possibly palpable displacement of parts of the vertebrae, that the spinal cord is encroached upon by fragments of bone.
3. Retention of the bullet accompanied by signs similar to those detailed under 2. . . .

Operation, if decided upon in either of the two latter circumstances, may be performed at any date up to six weeks, but if pressure be the actual source of trouble it is obvious that the more promptly operation is undertaken the better.

The purpose of this paper is to examine the outstanding features of traumatic paraplegia in the light of these indications and with reference to the possibility of treating underlying causes; to endeavour to show that the causes are very often extra-thecal and therefore amenable to a comparatively safe operation; to indicate one or two practical points respecting the operation that have impressed themselves upon me; and to give a short account of three illustrative cases.

Prognosis.

The gravest sign is, of course, flaccid paralysis, which indicates a complete physiological interruption in cord-conduction. It entails complete sphincter, motor, and sensory paralysis below the lesions, and is necessarily bilateral. It may, however, be quite transitory, as I have good cause to remember, having given a bad prognosis in an industrial accident of this kind, in which a month afterwards the patient was walking about. Persistent flaccid paralysis, it need scarcely be mentioned, places the case beyond scope of operation, except perhaps for the relief of girdle pain. Spastic paralysis, however, merits further inquiry, and I believe that involvement of the sphincters is of great prognostic importance.

Except in lesions of the lower cauda equina, where, in fact, involvement of the third and fourth sacral nerves frequently appears to be the salient feature, sphincter paralysis rarely appears without a high degree of motor involvement. I have met only one case, a mid-dorsal wound, and even in that, though the gait was not noticeably affected, the reflexes were very active and sensation diminished in both legs. The bladder trouble, which was of the nature of precipitancy rather than dribbling, had existed from the time of wounding; and in the absence of gross motor symptoms it is reasonable to suggest that the trouble might be due to intramedullary injury, perhaps a minute haemorrhage picking out the bladder-controlling fibres and exerting slight but not destructive pressure upon adjacent tracts. This reasoning is based upon the probability of the bladder fibres lying deeper and therefore less exposed to pressure from without than the tracts to the limbs, as the signs of a slowly increasing paraplegia would suggest. The slow progress of caries paraplegia gives good opportunity for prolonged observation. A definite order of involvement of nerve tracts is seen; motion is first affected, and very soon sensation, but a considerable degree of impaired sensation may exist with slight loss of motion. Sensation, however, is usually lost before the sphincters are affected. In recovery, sensation returns before motion, and sphincter activity precedes both. It is reasonable to conclude that a prolonged period of sphincter paralysis should affect prognosis adversely, especially when the compressing agent is displaced bone or callus, as may occur in gunshot wound. In caries paraplegia spontaneous recovery occurs in the remarkable proportion of 83 to 95 per cent. of cases (Tubby). It is to be noted, however, that many orthopaedists regard involvement of the sphincters as gravely affecting the prognosis, and this even in a condition in which the compressing or irritative agent is nearly always granulation tissue or pus, and not bone. In traumatic paraplegia, on the other hand, though in one of the cases described below (Case III) the causal agent seemed to be granulation tissue in contact with the theca, the offending body is usually something far less kind. Hence the smaller likelihood of recovery without operation, and, in fact, the probability, in the absence of operation, that complete sclerosis of the cord at the point of pressure will follow. It would be difficult to deny that sphincter paralysis is at least as grave a symptom in traumatic paraplegia as it is in caries. When it occurs from the first and does not rapidly improve, it indicates a lesion not amenable to operation; when late, it may indicate that the time for operation has passed, and this as much in relation to the fitness of the patient to undergo a severe operation as to the recovery of the cord itself.

Spontaneous Recovery.

Spontaneous recovery in concussion, when the whole thickness of the cord has been temporarily put out of

action by shock, has already been referred to, but a large number of cases of definite spastic paraplegia also improve or recover with rest. These phenomena are evidently the expression of vascular changes, varying from temporary anaemia of the cord to actual extravasation of blood in relation to the theca. It is highly probable that the spinal cord reacts to injury to its bony casing in much the same way as the brain. Cushing has shown that concussion of the brain is after all nothing more than a stage of compression and dependent upon the immediate vascular changes caused by the injury, the later stages of pressure causing anaemia and the earlier, with its clinical picture of irritation, congestion. The cord, however, is less closely applied to its dura than is the brain, and this would favour rapid "recoil" of the circulation following the anaemia primarily produced and encourage the production of minute intramedullary haemorrhages. The degree of recovery is closely related to the extent of these minute extravasations. They may be entirely absent (concussion with recovery), may be so small as only to cause a train of neurasthenic symptoms, or may cause an amount of intramedullary destruction and pressure varying from a slight nuclear or tract involvement to a complete transverse lesion.

It is hardly necessary to say that intramedullary haemorrhage is not of operative interest. Subdural haemorrhage from shock applied to the spine is a most unlikely event. If it occurred it would be small in amount, and there is ample space between the cord and the dura to allow it to develop without causing urgent pressure symptoms, and spontaneous absorption would probably follow. If the subdural haemorrhage followed a direct hit of the theca its presence would be masked by other severer signs. Intraspinal haemorrhage, however, is probably of great importance, as it is almost necessarily present in injuries to the bony tube, and, with or without the reparative effusion which accompanies the healing of fractured bones, accounts for the pressure in those cases of spastic paraplegia that recover without operation.

Distribution of the Paralysis.

With the possible exception of Case III, I have not met a unilateral lesion. One lower limb will frequently be affected more than the other, but a purely one sided lesion in trauma must be very uncommon and the Brown-Séquard syndrome consequently must rarely be seen. Case III seemed to have shown this phenomenon in France, but by the time he reached this hospital the paralysis and anaesthesia were certainly most evident in the same limb, and the patient himself was emphatic that this had been the condition of things throughout. In the light of experimental section of the cord by Mott, Horsley, and others, however, this is what might have been expected.

A Retained Missile.

I have observed five cases in which the missile lay in the spinal canal and all were complete lesions. The temptation to remove the offending missile in such a position is great, and in three cases this was done. In one the exposure of the laminae disclosed a circular aperture through which peeped a shrapnel bullet, and the theca showed no damage. No improvement followed even in this case, and it is fair to conclude that the presence of a missile within the spinal canal is of very grave significance. Missiles in relation to other parts of the spine are fairly common, and if the theca has not been directly hit by them in their path, the paraplegia, if present, is of extra-thecal origin and therefore amenable to treatment. This goes to prove that the etiological classification of gunshot wounds of the spine into complete and incomplete cases has a prognostic basis also.

The Question of Operation.

My own operative experience of laminectomy is limited to seven cases. Four were instances of flaccid paralysis with sphincter involvement and bedsores, and operation was undertaken for some specific reason—agonizing girdle pain, or the presence of a missile within the spinal canal, the removal of which, it was hoped, might improve matters. No improvement resulted; in two cases gross damage to the spinal cord was seen, and one patient, in whom the removal of the missile was followed by escape of turbid cerebro-spinal fluid, died. In the three remaining cases, described below, operation was undertaken for spastic paraplegia of different degrees. In none was there involvement of the sphincters, and recovery of health and function was complete in each case.

To attempt to generalize from such limited experience would be of no value, but it is permissible to summarize the points that appeal to the operator. In the first place, it may reasonably be stated that the difficulties of the operation, though great, are not so formidable as is taught. The wound becomes very deep as the operation proceeds, and oozing is always troublesome. A free muscular separation, though it may weaken extension of the spine, benefits the patient by shortening the operation, and can be met by prolonged recumbency afterwards. Retraction cannot be efficiently effected by one assistant. The use of very hot lotion to stop oozing serves well to indicate those bleeding points which require ligature, and the operator should obtain as complete haemostasis as possible before the laminae are divided, for the intraspinal veins will give enough trouble without the added annoyance of blood trickling in from above. After the removal of the laminae, lotion hot enough to be really haemostatic might be harmful, and gentle patient swabbing until the fatty sheath can be opened and pressed aside is quite effective. When the dura spinalis is exposed firm pressure can be applied in a lateral direction and a complete examination made. Opening the theca admits such a great additional risk that the indications must be very definite to justify it, but my experience tends to show that in recoverable injuries the cause lies outside the dura.

It can be asserted that the special dangers of sepsis are small, provided it is not necessary to open the theca. A prolonged operation is always likely to admit a degree of sepsis even when performed under the best conditions. Hence, when a coarse decompression has been performed and the theca exposed, the surgeon may well ask himself what condition due to gunshot wound would indicate opening it with a prospect of success that would justify the risk. In each of the cases described below a degree of sepsis was present. Case I was postponed on account of the septic condition of the emergent bullet wound until it was thought unwise to put off the decompression any longer. The laminectomy wound as a matter of fact healed primarily. In Case II pus was encountered in the callus in the spinal canal and the wound was drained for a few days. In Case III operation was undertaken in the presence of a freely discharging sinus leading to the body of a vertebra; this sinus was probably the cause of the delay in recovery, acting possibly by inducing a mild localized myelitis or perhaps a local oedema of the cord. It is common knowledge that a paralysed peripheral nerve adjacent to a bone sinus, and thought previously to have been severed, will often recover spontaneously when the sinus has been efficiently dealt with.

The risks, then, of the operation in reasonably capable hands and with a practised anaesthetist are sufficiently small to warrant the statement that when there is only a chance of benefiting the patient operation should be performed. This is not to say that it should be urged upon him. In fact the patient himself, realizing he has no hope apart from operation, and that even that is slender, will sometimes desire operation when the surgeon realizes its hopelessness. Whether to buoy up the hopes of a patient doomed to permanent paralysis, or to inflict the additional misery of despair by strict truthfulness, is an ethical problem not likely ever to be settled.

CASE I.

Sergt. C., aged 31, was wounded on March 2nd, 1916, by a bullet which passed through the laminae of the seventh cervical and first dorsal vertebrae, fracturing both. Entry wound at root of the neck on the left side, healed. Emergent wound over the right acromion was a septic crater with bare bone at the bottom. On admission, March 10th, sensation was absent in both feet, dull in legs and thighs, and absent about the lower part of the thorax and up to the nipples. Movements of the lower limbs present everywhere, weakly executed, and readily fatigued. Reflexes very active and passing into clonus. No sphincter trouble. Further history is one of increasing paraplegia until voluntary movement ceased entirely and sensation was practically gone from nipples downwards. About March 28th involuntary clonic movements started in the legs, coming on in paroxysms, which awoke him at night. A necrotic patch appeared on the left heel. Fear of sepsis from the shoulder wound preventing earlier operation, laminectomy was not performed until April 22nd. The shoulder wound was covered by

a collodion dressing and the last cervical and first dorsal laminae removed. This was done piecemeal, as the laminae were represented by an indefinite mass of old and new bone, and it was very difficult to determine when the spinal canal was reached. This was, however, eventually well opened up, the fatty sheath separated, and the theca well exposed and lifted gently to free it. Pulsation good. Wound closed without drainage. Three days afterwards the patient volunteered that he could "feel his feet." Lower limbs immobile, very spastic, and involuntary movements as troublesome as ever. Within ten days the patient could, however, control the "spinal convulsions," and considerable muscular power was evident. By the end of June he could walk without support, and on August 25th was invalided, walking quite normally. Reflexes active, no clonus, anaesthesia about upper part of thorax.

CASE II.

Pte. G., aged 18, was wounded on March 20th, 1916, by a fragment of shell, which entered on the left side of the spine in the interscapular region; on the right side of the same region a counter opening had been made. Missile not removed. Admitted March 25th; *x* rays showed a piece of metal between the angles of the fourth and fifth ribs (right side) and damage to the right side of the fifth dorsal vertebra and neck of the fifth rib. No chest symptoms. Both wounds healed without removal of the missile and patient was sent to an auxiliary hospital on May 3rd. On May 28th the patient, who had been walking about quite actively for some weeks, was suddenly seized with weakness of both legs, especially the left, which gave way under him, and he fell to the ground. He was at once returned to this hospital. On readmission there was paralysis of the whole left leg, except for some fruitless twitchings of the front of the thigh. Superficial and deep reflexes grossly exaggerated; no Babinski. Right leg definitely weak, but all movements could be executed. No sphincter trouble. Partial anaesthesia in both limbs, with tracts of complete anaesthesia on outer side of the left leg and thigh. Wounds soundly healed. Operation June 3rd; the fifth and sixth dorsal laminae removed. When the theca was well exposed a nodule of soft vascular bone was seen projecting against the right side of the dura. The projection was continuous with a mass on the right side about the pedicles of the vertebrae, was easily lifted out, and showed a central core of soft granulation tissue, continuous with septic granulation tissue in the new bone close by. Theca gently freed and observed to pulsate well. Wound drained. Convalescence interrupted by pneumonia on second day; patient had to be placed in a sitting position with shoulders strapped to the bed-rest for two days; after that nursed on each side alternately. Temperature normal in six days. Recovery of paralysis by the end of June was nearly complete. Invalided out, walking quite normally, in August.

CASE III.

Pte. M., aged 20, was wounded on September 20th, 1916, by a shrapnel ball which entered between the vertebral border of the left scapula and the spine, and was localized as lying "behind or in the body of the third dorsal vertebra." He had been operated upon in France for removal of the missile, but his condition forbade completion of the operation. Notes from France indicated that a left motor and right sensory paralysis had existed from the nipple lines downwards.

On admission to this hospital on November 3rd, 1916, there was a discharging sinus in the centre of a wide vertical scar about two inches from the middle line. Movements of the right limbs were not affected. The left was paralysed below the knee and its reflexes were very active. Sensation was impaired on the same side, especially in the foot, and in the right limb, though not acute, was better than in the left. Condition slowly improved until hip and thigh movements were quite strong, but not more than a flicker of movement was possible below the knee. The sinus discharged as freely as ever, hence it was decided to attempt to remove the missile. This was done on January 7th, 1917, and as any attempt to explore the sinus would be dangerous unless its exact relation to the theca were known, the latter was deliberately exposed by the removal of the greater part of the third and fourth dorsal laminae. A probe was then passed forwards by the side of the left edge of the theca into the body of the third dorsal vertebra. The theca being protected by a small spatula, the ball was easily removed, together with a quantity of septic granulation tissue. The laminectomy incision was closed entirely and lateral drainage with gauze carried out along the course of the original sinus. Suppuration was free for two or three weeks, then rapidly improved, as did the paralysis. At the end of March the patient was walking with the aid of a walking-stick, and by the end of May walked quite normally.

Summary.

In Case I the paralysis, slight at first, increased to complete immobility of the lower limbs. In Case III the paralysis also existed from the time of wounding, but recovered to a considerable degree before operation. In Case II the paralysis occurred quite suddenly about nine weeks after the injury in a patient who was well and active. In no case was the Brown-Séquard syndrome (paralysis and hyperaesthesia of one side and anaesthesia of the other) seen, although Cases II and III were mainly unilateral lesions as far as motor paralysis was concerned. Case II showed a patchy anaesthesia most marked on the outer side of the paralysed thigh, but the other limb was dull to pinprick; the fact being that when sensation is involved on both sides differences of degree are hard to detect, and, unfortunately, no attempt was made to discriminate between painful, thermal, and tactile impressions.

In each case (*a*) the paralysis was incomplete in the sense that sphincter trouble was absent; (*b*) the injury was indirect, and due to damage to the spinal column and not to the cord itself, and (*c*) recovery was complete.

The immediate effects of the operation in restoring or improving the circulation in the cord were not determined in any case. Decompression in laminectomy is a gradual procedure, and probably pressure is relieved long before the theca is exposed. The dura was not opened in any one of the three cases.

[The writer gratefully acknowledges the help of his colleague, Lieutenant Wellesley Simon, R.A.M.C., both in the clinical observations and the treatment.]

FIVE INTESTINAL OPERATIONS ON THE SAME PATIENT.

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THE following case is interesting, not only because the patient had to be submitted to five intestinal operations in four years, but on account of its course and the difficult clinical problems it presented. The patient was a man born in 1894.

I.

Appendectomy, for acute appendicitis, at the North Staffs Infirmary in July, 1913; no drainage. Afterwards he had frequent attacks of sharp colicky pain in the right iliac fossa, but was not confined to bed.

II.

Exploratory laparotomy, at Hull Naval Hospital, in December, 1915, for severe pain in the right iliac fossa, with vomiting. The abdomen was opened near the appendectomy scar and closed without drainage.

III.

Ileostomy, for acute intestinal obstruction. He was admitted to the Stoke-on-Trent War Hospital late at night on January 14th, 1916. No satisfactory history could be obtained. The abdomen was opened by a median subumbilical incision. The small intestine was greatly distended; the large intestine loaded with hard scybalous masses. In the right iliac fossa was a mass of large and small bowel, inextricably matted together by very numerous and tough adhesions. There was great abdominal distension and profuse stercoraceous vomiting. He appeared to be moribund. A piece of ileum, as near the caecum as possible, was brought into the wound, stitched there, and opened at once. The stomach was washed out. The artificial anus acted well, but the skin around it became very foul and sore, and the man begged for a further operation.

IV.

Intestinal anastomosis, with bilateral exclusion of intestine, leaving mucous fistula. On February 11th, 1916, the artificial anus was plugged, and the soiled skin excluded, as far as was possible, by a sheet of sterilized batiste fastened down with I.R. strapping. A large flap of skin (Fig. 1) was marked out on the left side above the umbilicus, and turned over to the right. The abdomen was then opened just to the left of the middle line. The intestine was doubly clamped in two places—the ileum as near the artificial anus as was feasible, and the transverse colon in its distal third. Later, anastomosis was made between the ileum and the transverse colon (Fig. 2). Then the ileum was divided distal to the anastomosis and the transverse colon proximal to the anastomosis. Both ends of

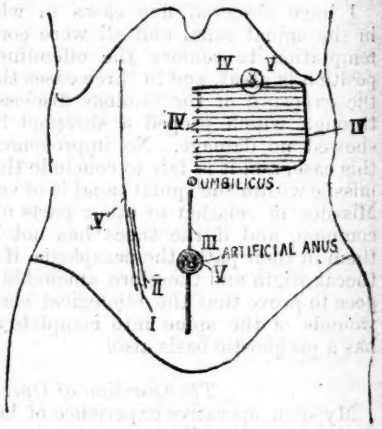

FIG. 1.

the ileum were closed, as was the distal end of the colon. The proximal end of the colon was ligatured where crushed, and the end brought to the surface at X (Fig. 1), being fastened in position by several sutures. The flap was replaced without drainage.

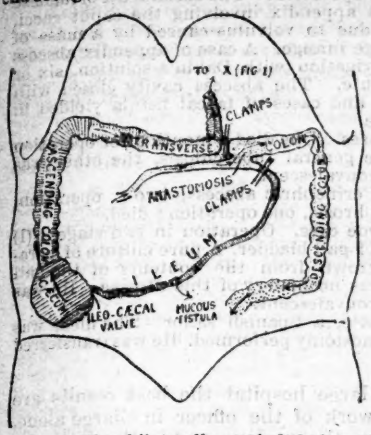

FIG. 2.—The bilaterally excluded bowel is shaded, and is the portion removed at Operation V.

The fistula soon only discharged clear mucus, which was not very irritating, and rapidly began to contract and heal round the exposed bowel, which became much less vascular, and did not show such active peristalsis as formerly. The end of the transverse colon brought out at X (Fig. 1) unfortunately disappeared beneath the flap, and mucus with clear watery fluid escaped at its left lateral margin. He took food eagerly, and rapidly regained weight and strength. The only disabilities remaining were the moisture from the fistula, and the fact that the bowels were always opened at least three times daily.

On August 6th, 1916, he was suddenly seized at breakfast-time with severe colic; no vomiting; no rigidity; great tenderness over caecum; temperature and pulse only slightly raised; great increase of fluid—now very malodorous—in spurts, from the fistula, where the exposed mucosa had lost its peristalsis.

On August 9th he was better and peristalsis was again seen at the fistula. On August 12th the skin at X (Fig. 1) showed signs of acute inflammation and soon discharge occurred with rapid relief of symptoms.

V.

Colectomy (July 18th, 1917).—A sponge was packed into the fistula. The incision was made through the entire length of the right linea semilunaris (Fig. 1), in its lower part invading the incisions of the first two operations. The abdomen was difficult to enter because of great vascularity, adhesions, and scar tissue. The adhesions in the right iliac fossa (see Operation III) had almost entirely disappeared. Thorough exploration was made, adherent coils separated, and all bleeding points tied. One adherent coil required inversion by a purse-string suture at the area of separation. Colectomy was started by mobilizing the caecum and ascending colon—this was easy and the mesenteric vessels were tied off very tightly with strong silk near the bowel, or in places where fat was very abundant, in the groove left by crushing forceps. Clamps were placed on the bowel side of the ligatures. More trouble was met with at and beyond the hepatic flexure because the empty part of the transverse colon was much atrophied—smaller than the ileum—and was shrunken up under the ribs owing to shortening of its mesentery. The mucous fistula was excised, and it was strange to find that six feet of ileum required removal before the blind end near the anastomosis was reached. The removal of the excluded portion of transverse colon was troublesome because of the poor access, adhesions near the anastomosis, and atrophy and friability of this gut. The blind end was embedded in scar-tissue at X (Fig. 1), and a fresh incision had to be made encircling this pocket. Some oozing took place here, and as it was known to be previously infected tissue a split tube was left at X for two days.

He did well, and writing on October 4th, 1917, said, "I feel better now than for the last two years." Up to the present (March, 1918) he remains quite well; weighs 10 st. 10 lb., and plays football.

The following points in the case appear worthy of remark:

1. The adhesions found on January 14th, 1916 (Operation III), could not be separated by fingers and gauze. Their origin is obscure, and their almost total disappearance noteworthy.

2. The constant tendency to diarrhoea since 1913 is, perhaps, partly due to his very healthy and unrestrained appetite.

3. When he was operated upon for obstruction his moribund condition and the absence of history made the case difficult.

4. An ileostomy is a hateful proceeding, but it is the only life-saving measure to be considered in such a case. The bowel should be opened at once and the stomach washed out. Primary anastomosis should not be attempted.

5. The technique of intestinal anastomosis and bilateral exclusion of intestine presents few difficulties nowadays, but in the presence of an artificial anus special care is required to avoid infection.

6. Owing to an error of technique an adequate safety-valve was not procured for the excluded portion of colon. For a time the outlet at the ileal end was sufficient, but the instructive and interesting happenings in August, 1916, have been described to illustrate the dangers of relying upon the ileo-caecal valve to become incompetent—as finally occurred. A safety valve at both ends of bilaterally excluded intestine should always be provided.

7. It was astonishing that no less than six feet of ileum had to be removed at Operation V, in spite of the deliberate choice, at Operation III, for the ileostomy of what was thought to be a coil quite close to the caecum.

NOTES ON SURGICAL WORK IN A GENERAL HOSPITAL.

WITH SPECIAL REFERENCE TO THE CARREL-DAKIN METHOD OF TREATMENT.

BY

MAJOR J. S. DUNNE, D.S.O., F.R.C.S.I., R.A.M.C.

THE following is written from notes made by me during the period of seven and a half months when I acted as officer in command of a surgical division of a general hospital at a port of embarkation. The situation of the hospital made it necessary that a certain number of beds should be left in reserve for cases from ambulance trains and ambulance transports when from any cause cross-channel traffic was held up.

Cases admitted had been treated by various of the methods advocated.

1. *Flavine.*—A number admitted from casualty clearing stations had been treated by flavine and Z paste, and had been kept by the casualty clearing station for a period of from six to ten days. The results were exceptionally satisfactory. The wounds in nearly all were closed; in some the sutures had been removed, in others the sutures were removed in this hospital. Only two showed signs of inflammation; one of these was a case of very severe multiple wounds, which would account for the incomplete operation performed. Where the patient can be kept under observation and an early and complete operation performed, this seems an ideal method of treatment.

2. *Bipp* cases did not arrive in the same satisfactory condition; most of them were thoroughly septic. In my practice, with two exceptions, bipp was used only as a sequel to the Carrel-Dakin method when the wound surface had become flat or too small for the application of Carrel's tubes. In the latter part of the period it was replaced by chloramine 4 per cent. in vaseline.

3. *Salt pack* cases arrived bathed in foul-smelling discharge; gas gangrene cases arrived with this dressing. Salt dressings were continued for a short time by one surgeon. *Bacillus pyocyaneus* was a constant complication, and the haemorrhagic granulations were a constant drain on the patient's vitality.

4. *Carrel-Dakin Method.*—Cases so treated invariably arrived in good condition, and if the complete operation had been performed and the technique strictly carried out, it was often difficult to realize that the patient was suffering from a dangerous wound.

An officer arrived after a very long train journey, sitting up on his stretcher, looking quite fit. Ten days previously he had been hit in the right lumbar region by a piece of shell casing 2 in. × 1 in.; there had been a jagged wound and rupture of the colon. Operation within twelve hours; the foreign body and fragments of clothing were removed, the lacerated muscles and fascia excised, and the rent in the colon closed. Carrel-Dakin dressings. On admission, the temperature was normal; there was one Carrel tube in the superficial wound, the remainder was closed and healed.

The Carrel-Dakin method gave the greatest satisfaction to me and was carried out thoroughly with the following technique:

Technique.

X-ray photographs accompanied the patient to the theatre. Ether soap, followed by methylated spirit and 2 per cent. iodine, were used to disinfect the skin. Free incisions were made exposing all injured structures and opening up dead spaces; the foreign bodies present were removed, and fragments of clothing looked for; all dead tissues, fascia, muscle, and fragments of bone without periosteal attachment to the shaft were excised, and all bleeding and oozing were controlled. Carrel's tubes were then placed in every part of the wound so as to ensure flow of

antiseptic towards the surface. Gauze soaked in Dakin's solution was placed lightly on the tubes. The adjacent skin surface was spread with gauze soaked in sterilized vaseline; the dressing was completed by applying a large Carrel dressing held in place by wooden clothes-line pegs. When the general condition of the patient made speed imperative, and the local conditions made complete operation dangerous, the injured part was rapidly explored, and incisions made to allow the Carrel tubes to reach the depth of the wound. This plan was so satisfactory that a second and complete operation could be performed without danger of septic absorption. The surgeon, assisted by a sister, nurse, and orderly—no more than he has for any other method—could carry out the after-dressings. The same preparations and precautions were used as for an aseptic operation as far as sterilization of dressings, instruments, and gloves is implied. The gloved hands were never permitted to touch the dressings. With each of the team doing his or her allotted part, ten large dressings could be accomplished in an hour. Sisters soon became expert, and taking the place of the surgeon, could carry out the dressings with success, the only difference being that the time occupied for each dressing was perhaps a little longer.

Bacteria counts were very efficiently carried out by a V.A.D. nurse trained in the work. The results were charted. Variations in the curve led to scrutiny of the technique, and delay in rapid improvement led one to suspect errors in technique, such as insufficient opening up of tracks, or, in comminuted fractures, necrosis of a doubtful fragment, or tubes badly placed.

Results.

Of 1,917 admissions, with 1,100 operations, there were 40 deaths. Many of these were admitted moribund from trains or hospital ships, and included 3 cases of tetanus, 2 of gas gangrene, 5 fractured femurs, and 2 unoperable neck wounds, 4 knee cases septicaemic on admission, 1 of secondary haemorrhage which developed gangrene after necessary ligature of the femoral artery, 2 buttock cases—one of these had longitudinal fracture of the neck of the femur with infection of the hip-joint—and many severe head injuries.

The success of the Carrel-Dakin method was obvious from the first. Secondary haemorrhage practically completely disappeared. There were three haemorrhages; two were reactionary, the third was a true secondary haemorrhage from an external saphenous vein, and was easily controlled without anaesthetic. The patients were cheerful and happy; dressings were not dreaded, and the nursing staff were pleased with the rapid convalescence of their charges.

Immobilization of Fractures.

The splints most in favour were Thomas's arm and leg, with or without superstructure; special splints were also obtained. At the end of the period under review, two officers who made a special study of constructing splints for individual cases were attached. I had not an opportunity of seeing splints for femurs, but their arm and lower leg splints were excellent. Compound fractures, both upper and lower arm, were amongst the up-patients very soon after admission; their apparatus, combined with the Carrel-Dakin technique, gave very good results. The large Carrel dressings are supplied to this hospital by the Irish War Hospital Supply Dépôt, Merrion Square, Dublin.

Carrel's method of instilling a potent antiseptic is both a life and a limb saving technique. Cases which arrived with the treatment in progress, even though the tubes might have been displaced in transit and a further operation proved necessary, could be approached without anxiety. In some other cases I would have amputated without hesitation as the only means of saving life but for this method.

Secondary haemorrhages need never occur if the technique is faithfully carried ont. The method goes as nearly to giving complete physiological rest as is possible. Dressings need only be done every forty-eight hours, except in very septic cases, and there is none of that terrible nerve racking which other dressings entail. Patients watch the progressive improvement of their wounds with the greatest interest. In the Carrel-Dakin technique we have physiological rest reinforced by the scientific destruction of the local poison.

General Surgery.

During the period there were 481 major operations of a general surgical nature.

Appendicitis.—Of these operations, 100 were for appendix conditions, with 98 per cent. recovery. The incision recommended by Battle was used in 95 per cent. I modified it slightly by carrying the incision lower than recommended; by this I left the semilunar fold intact. Jackson's parieto-colic membrane was found in two cases, Lane's bands in three. Two deaths occurred. The first patient was almost moribund from general peritonitis at the time of operation. The second, a Portuguese soldier, with gangrenous appendix involving the caput caeci, died from obstruction due to volvulus caused by a mass of faeces the size of a large orange. A case of appendix abscess was treated by drop irrigation with Dakin's solution, six or eight drops to the minute. The abscess cavity closed with extraordinary rapidity, and cases of faecal fistula yielded in a surprisingly short time.

Enteric Ulcer.—Two cases. One died a month after operation from intercurrent acute general tuberculosis, the other was transferred to England convalescent.

Acute Renal Cases.—Perinephric abscess, two; operation, recovery. Hydro-pyonephrosis, one operation; died.

Acute Cholecystitis.—One case. Operation in two stages: (1) Drainage; (2) excision of gall bladder. A pure culture of paratyphoid bacillus was grown from the contents of the gall bladder, though there was no history of this disease. He was transferred to England convalescent.

Gastric Ulcer.—One case, a Spanish sailor. The ulcer was closed, and gastro-duodenostomy performed. He was transferred convalescent.

In the work of a large hospital the best results are obtained not by the work of the officer in charge alone, but require in addition the zealous and enthusiastic co-operation of all the staff. I wish to express my thanks in particular to Captain Bourne, F.R.C.S., and to the Sisters, whose careful attention to detail largely contributed to the success obtained in the use of the Carrel-Dakin method.

[Owing to want of space we have omitted reports of a number of cases, the course of which illustrated the excellent results described by Major Dunne as generally obtained.]

INFECTED FRACTURES:

TWO CASES TREATED BY LANE'S PLATES AND CARREL DRESSING.

BY JOHN MACINTYRE, F.R.C.S.EDIN.,

MÉDECIN CHEF, HÔPITAL TEMPORAIRE, ARC-EN-BARROIS, HAUTE MARNE; EXTRA DISPENSARY SURGEON, GLASGOW ROYAL INFIRMARY.

IN the last ten months I have had over 500 cases of infected gunshot wounds, many with profound bone lesions, under my care at this hospital, and nothing but Carrel's method has been used. The results have been invariably successful; healing has been rapid, and in only two very badly infected cases have I seen secondary haemorrhage, and that only in the early stages of treatment. The charge that cases break down after apparent healing and evacuation from hospital is one that can be brought against any method of treatment. If the preliminary *débridement* has not been thorough, the surgeon will find cases breaking down; but it is not the method that is here to blame—it is the surgeon. Besides, a superficial breach of the surface of a scar of a wound treated by the Carrel method frequently ensues when massage and thermal baths are used for the stiffened joints and muscles that accompany the wound. This, again, might occur with any method of wound healing. The breaking down in any case is usually only superficial and slight compared with the great gaping wounds so wonderfully built up again by the aid of the Dakin solution.

I need not describe the method here; that is best to be found in Carrel's own book or Child's translation.[1] But it is better learnt from practice than from books. See someone who has mastered its use at work and then work at it yourself. It is not difficult, but a certain facility and sense of perspective can only come from practice, and are not to be got from precept.

One thing is of prime importance—the preparation of the Dakin solution according to Carrel's instructions. Failure usually comes from use of a faultily made solution, or from use of a carefully prepared solution which has been kept over-long and has deteriorated. In fact, the surgeon himself should be familiar with the process by which the estimation of the percentage of hypochlorous acid in the solution is made, and check this percentage for himself. If he does this he will have a proper strength of solution; if not, he may have a proper strength or he may not, and he must take the consequences in risks of failure. Nothing much can go wrong if the surgeon will spend five minutes twice weekly at the titration of his Dakin's solution. We have found that the best chloride of lime and other chemicals necessary for Carrel treatment are

those made by Poulenc Frères, Paris; but, of course, good, fresh, damp-free English chloride of lime may serve equally well.

To many the above may seem small or obvious details, but if the observance of them leads any one sceptical of Carrel treatment to a revision of his opinions and to his making full use of this new method, I believe that many lives and limbs will be saved.

I append notes of two cases which, although not gunshot wounds, may be of interest as supporting the claims I make.

G. R., on May 13th, 1917, at Landrecourt, sustained by a fall from a wagon a simple fracture—spiral—at the junction of the lower and middle thirds of both bones of the right leg. Reduction was said to have been made under *x* rays, and a gutter plaster had been applied. He was evacuated to another hospital and then sent to us on May 21st. The bones seemed to be in good position, but there was a shortening of 2 cm.

Pressure of work on more urgent cases prevented my making a fuller examination until June 11th, when the plaster was removed, and not the least sign of union was found. Under *x* rays a left-handed spiral fracture of the tibia at the site above indicated was made out. Under ether, on June 21st, the fracture was exposed and muscle found intervening between the fragments. This was dislodged, and the ends of the fractured bones nibbled and freshened. An attempt was then made, with difficulty, to overcome the overlapping. The fracture being five weeks old the muscles had retracted, and the apposition was not all that could be desired. A Lane's four-screw plate was applied and the wound close sutured. An Edinburgh box splint was used.

At the operation I was short-handed for assistants during extension, and had myself to attempt, at one stage, helping with one hand to get the proper degree of torsion. The sterile foot-covering slipped, and I suppose that at this moment my hand must have come into contact with some non-sterile portion of skin, and been imperfectly resterilized by washing thereafter. In any case, an infection of the wound occurred; and on June 27th two of the lower stitches showed signs of infection. On July 2nd definite infection of the whole line of suture was present. The incision was opened up afresh and a Carrel tube led down to the plate, vaselined gauze applied to the skin around, and gauze pads soaked in Dakin's solution applied. Absorbent wool, covered by a layer of non-absorbent, was laid over this, and injections of Dakin's solution given by tube every two hours—that is, the usual Carrel treatment was followed. The leg was placed on a Pringle's splint for leg fracture.

The plate was removed on August 27th, when union was good, and by September 10th the wound was well healed under Carrel dressing.

On September 29th the patient was walking. There was slight eversion of the foot and some stiffness at the ankle. Massage to the whole limbs and single daily movements of knee and ankle were given during this rather lengthened treatment. The patient was evacuated, walking fairly well, to Bourbonne-les-Bains, a centre for mechano-therapy, on November 28th. The shortening was 2 cm.

The points in this case that seem to me of interest are:

1. Fracture at a site where good union is extremely difficult to obtain.
2. Definite control of a fresh infection of a clean wound during operation (even in the presence of so large a foreign body as a Lane's plate with four screws) until the bony union of a fracture is complete.

In the absence of Carrel treatment, such a case, instead of closing in in ten and a half weeks, would probably fail altogether, or take three or four times as long, and necessitate several cleansing operations.

H. R. was injured on April 21st, 1917, at Verdun by a kick from a horse. He presented a badly infected compound fracture of the right tibia and fibula at the junction of the middle and lower thirds. He had received an injection of antitetanus serum on April 21st and a second on April 30th. It was impossible to say what treatment he had had in the way of dressing, but the fracture had been reduced and a gutter splint of plaster-of-Paris applied.

He was admitted to our hospital on May 2nd in the evening, and operated on thirty-six hours later. *X* rays had shown a comminuted transverse fracture of tibia and fibula at the junction of the lower and middle thirds; the comminution being confined to an area of about 3 cm. square in the tibia. At operation some splinters of dead bone were removed. A copious sanious discharge was present. The alignment of the upper and lower fragments of the tibia was good. The wound of the soft parts was dissected out and opened up freely. The ends of infected bony parts were nibbled off and gutters cut in the anterior surface of both fragments to allow of penetration of Dakin's solution to the cancellous tissue. Carrel dressing with five tubes was applied; and the limb immobilized in an Edinburgh box splint.

The wound continued dirty, and soft tissues remained swollen for sixteen days. Injections of antitetanus serum were made, and seemed to have a good effect on the wound. The temperature range was from 37.4° C. to 39.4° C. The wound began to granulate well after the sixteenth day. On June 5th it was noted that the shortening of the limb was 4 cm. On July 7th the wound was well epithelialized all over, except for an area of about 1 cm. square. Movement could be elicited at the site of fracture. On July 15th a Pringle splint for fractures of the leg was used, with extension by strapping and weight. A rotating pull against eversion and a vertical pull against drop-foot were also applied.

By August 7th the surface was quite epithelialized, and under ether a Lane's plate with four screws was fixed over the fracture on the antero-internal aspect of the tibia. The wound was left widely open, and Carrel tubes and dressings applied. On August 24th the wound was granulating well, and the plaque was covered in at the upper end. On October 5th the plate was removed and the bone found to be well consolidated. The patient was evacuated to Bourbonne-les-Bains for massage and mechano-therapy on November 28th.

The shortening in this case was 4 cm., due to the comminution between the two principal fragments.

The points of interest in this case are similar to the last:

1. Fracture at a site where non-union is notoriously frequent.
2. Extremely bad infection of all parts, soft and bony, loss of bony substance, and gross trauma of the muscles and skin.
3. Definite control of the infection even in the presence of a large foreign body—a four-screw Lane's plate.

Without Carrel treatment I think this case would have required amputation at seat of election.

REFERENCE.

[1] *Le Traitement des Plaies Infectées.* Par A. Carrel et G. Dehelly. 1917. Paris: Masson et Cie. *The Treatment of Infected Wounds.* By A. Carrel and G. Dehelly. Translation by Herbert Child. 1917. University of London Press.

GONORRHOEA COMPLICATED BY SYPHILIS.

BY

N. P. L. LUMB, TEMPORARY CAPTAIN R.A.M.C.

IN the past it has been customary to look upon syphilis as a much more important disease than gonorrhoea, and considerably more attention has been paid to it than to the latter. This is evident from the fact that a patient presenting himself with signs of both syphilis and gonorrhoea is commonly given thorough antisyphilitic treatment without delay, whilst the sum total of the treatment advised for gonorrhoea is an irrigation twice a day with permanganate of potassium. This plan is unsatisfactory, and an experience of large numbers points to the fact that modern antisyphilitic treatment at times (1) stirs a latent gonorrhoea into activity; (2) leads to the development of complications; (3) renders the gonorrhoeal lesions very intractable.

These three points are illustrated by the ten cases quoted below, all of which were treated by injections of arsenobenzol compounds (either by the deep subcutaneous method or intravenously) and weekly injections of mercury:

CASE 1.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. Gonorrhoea twelve months before; no relapse since. After four arsenobenzol and three mercury injections acute prostatitis developed, followed by inflammation of the left Cowper's gland, the pus from which was found to contain gonococci. Later there was arthritis of the left shoulder.

CASE 2.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea two months before. Acute left epididymitis developed after ten injections of arsenobenzol and five of mercury.

CASE 3.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. Past history of gonorrhoea not clear. After three mercury injections acute prostatitis developed, followed ten days later by acute epididymitis.

CASE 4.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea six months before; no relapse since. After ten arsenobenzol and seven mercury injections acute epididymitis developed.

CASE 5.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea four years ago; no relapse since. After five arsenobenzol and three mercury injections acute epididymitis developed.

CASE 6.—Early secondary syphilis. The primary lesion appeared three weeks after exposure to infection, and there was a doubtful history of a slight purulent discharge for two days, possibly of balanitic origin. No urethral discharge on admission, nor subsequently for three weeks; throughout this period the urine was under observation; it was clear and free from filaments. There had been no previous attack of gonorrhœa. Three days after the third weekly injection of mercury and arsenobenzol a profuse purulent discharge appeared and the urine became cloudy. Eventually, when the discharge had been reduced to a minimum, the urethroscope showed clearly that Littré's glands were responsible for the trouble. Very persistent inflammation of them kept up a discharge for three months.

It will be observed that in Cases 1 to 6 there was no evidence of active gonorrhœa when antisyphilitic treatment was commenced; but in four of them a definite past history of gonorrhœa, varying from two months to four years, without subsequent relapse.

CASE 7.—Primary syphilis. Gonorrhœa evident on admission. After three arsenobenzol and two mercury injections acute epididymitis and prostatitis developed.

CASE 8.—Secondary syphilis. Gonorrhœa evident on admission; two months since exposure to infection. After three arsenobenzol and one mercury injection acute epididymitis developed.

CASE 9.—Primary syphilis. Gonorrhœa evident on admission. After five arsenobenzol and two mercury injections acute epididymitis and prostatitis developed, and later a small hydrocele of the affected testicle.

CASE 10.—Primary syphilis. Gonorrhœa evident on admission. Eleven arsenobenzol and eight mercury injections were given. One month after the last mercury injection acute epididymitis developed.

In Cases 7 to 10 there was evidence of gonorrhœa when treatment was commenced.

An analysis of these ten cases shows the following frequency of occurrence of each complication: Epididymitis, 8 times; prostatitis, 4 times; cowperitis, littritis, arthritis, hydrocele, once each.

Of the four cases in which gonorrhœa was evident, epididymitis developed in every instance, and prostatitis in two of the cases. Taken by themselves, these four cases (7 to 10) are not noteworthy, though it is unusual for gonorrhœal epididymitis to develop in the ninth to tenth week, as in Case 10; but in conjunction with Cases 1 to 6 considerable interest attaches to them.

It is impossible to state definitely what is the cause of the onset of these complications, but the evidence points to the mercury compound rather than to the arsenobenzol. In another place[1] I have described a series of cases of acute gonorrhœa treated by injections of mercury compounds, such as enesol and mercury succinamide. In some of these it was found that epididymitis and prostatitis developed, without any exciting cause, as late as the tenth to twelfth week. This corresponds with the facts observed in Cases 2, 4, and 10.

At the moment of writing there are no figures available to show what the effect on the Wassermann reaction would be of withholding mercury for the first three weeks and administering arsenobenzol alone. If this could be done without detriment there would be a reasonable chance of controlling the gonococcal invasion before the mercury could exert any effect.

The number of cases recorded is much too small to allow any generalization, but it seems advisable to review the situation and consider what is the best line of treatment in patients presenting themselves with syphilis and either active signs of gonorrhœa or a past history of gonorrhœa.

The proportion of cases in which untoward effects are noticed seems to be about 10 per cent., and, in consequence, I have adopted the following routine in every case of syphilis, varying according to whether there are active signs of gonorrhœa or a past history of it.

1. When there is a past history of gonorrhœa and no active signs.

(*a*) A six to eight hours specimen of urine is taken twenty-four hours after the first mercury injection and examined microscopically for gonococci after centrifuging. The presence or absence of threads is also recorded.

(*b*) The prostate and vesicles are examined during the first week of treatment. A smear of the expressed secretion is made and examined microscopically for gonococci.

If both (*a*) and (*b*) are negative a dose of gonococcal vaccine is given (50 million gonococci), and test (*a*) repeated twenty-four hours later. If no gonococci are found, no treatment is necessary.

If gonococci are found, the urethra is examined carefully with the urethroscope to locate the infection, and suitable treatment commenced at once, varying with the nature of the lesion.

2. When there are active signs of gonorrhœa.

Irrigation into the bladder with 1 in 8,000 potassium permanganate is commenced at once, the strength being rapidly increased to 1 in 4,000 as soon as the patient can irrigate successfully. Vaccines are given from the start at regular intervals and the prostate examined about the tenth day. A straight bougie is passed at the end of the second week, and this reveals the presence of any inflamed glands of Littré.

The whole idea of the treatment is to prevent the gonococci from getting settled down in the tissues and so prolonging the attack. The intractability of some of these cases, especially when littritis is present, has been referred to elsewhere,[2] and it is constantly necessary to vary the strength of the irrigating solutions and the instrumental treatment according to the progress of the case. It has not been considered necessary to refer to the various mechanical ways in which syphilis may complicate the treatment of gonorrhœa, as, for example, when a meatal chancre is present or phimosis results from the presence of a syphilitic abrasion, since the correct method of dealing with them presents no difficulties.

REFERENCES.

[1] *Systematic Treatment of Gonorrhœa*, N. P. L. Lumb (Lewis and Co.), p. 55. [2] Idem., p. 83.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

I HAVE followed with great interest the discussion between Lieut.-Colonel Clayton Lane and Major F. H. Stewart on the life-history of *Ascaris lumbricoides*, and am familiar with the editorial note in the BRITISH MEDICAL JOURNAL, July 1st, 1916, which is frequently referred to by both of them in their papers (vide *Indian Medical Gazette*, August and October, 1917). I did not write on Major Stewart's letter, published in the BRITISH MEDICAL JOURNAL, September 30th, 1916, at the time, as no very useful purpose would have been served thereby, not enough work having been done at that time to determine the point one way or the other. Lieut.-Colonel Clayton Lane has dealt with the subject so fully in the *Indian Medical Gazette* (loc. cit.) that there is no necessity to say much more. He came independently to a similar conclusion to myself, that the passage of the ascaris larvae into the lungs of rats and mice indicated a vasculo-pulmonary circuit, as is seen in ankylostomiasis. Major Stewart's recent paper, published in *Parasitology*, January, 1918, which deals with *A. suilla* and the passage of its larvae to the lung of the pig, is very suggestive, and to my mind, though he did not always find adult ascaris in the intestines of his pigs after feeding with the ripe eggs, seems practically to prove the vasculo-pulmonary circuit. It certainly diminishes the force of the alternative hypothesis, that the lower animals act as intermediate hosts for the parasite, to practically zero. If *A. suilla* does the circuit in the pig, then it stands to reason—and this Major Stewart, I think, admits—that *A. lumbricoides* will do the same in man. If so, then there is only the other step for it to pass up the trachea, like the ankylostome, and so into the intestine, where it can become sexually mature. It is unfortunate that some of Major Stewart's pigs should have been infected before his experiments were begun, as it renders it difficult to say whether he reinfected them or not. The interval between the arrival of the larvae in the intestine and their development into adults may differ, and it may even be fairly long. The experiment to prove this point finally should not present insurmountable difficulties, and it is to be hoped that in the interests of helminthology this may shortly be carried out, preferably by Major Stewart himself.

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TREATMENT OF ORAL SEPSIS.

In my opinion, the original focus of the severer types of oral sepsis is at the margin of the gums and teeth. Mastication forces food in between the teeth, and between the gums and teeth. This food sets up a certain amount of irritation, and forms a suitable nidus for various organisms. The first problem is how to prevent food lodging in these sites; this can be solved only by efficient cleansing with a brush, which must be fairly stiff, and used after each meal in conjunction with a powder. I have found the following excellent: Mag. carb. pond. 3 parts; sulph. sublim., sapo Castil., āā 1 part; ol. menth. pip. q.s.

If gingivitis or pyorrhoea has already commenced, the affected area should be firmly swabbed with a small tightly rolled pledget of wool held in a pincette and dipped in liq. cresol saponis or any of its substitutes, taking care to remove the excess before using. A tumbler of warm water and spittoon should be ready to use immediately after. The thymol mouth-wash should be prescribed.

This method, I venture to predict, will come as a revelation to all who have laboured for weeks and months with iodine, hydrogen peroxide, and other methods, as it is so rapid in its effects; only in very advanced cases have I found it necessary to apply the liq. cresol saponis twice, and rarely three times, at two-day intervals.

In severe cases of pyorrhoea there is a dirty greyish-brown sloughing appearance at the gum margins, often jumping to the adjacent buccal mucous membrane; all these sites should be firmly swabbed, although the surfaces bleed in the process.

A similar condition is sometimes seen on the surface of the tonsils, and should be treated in a similar way; a sponge on a holder may be necessary here, dipped in sterile water or any mild antiseptic, if the person is too young or unable from any other reason to gargle. In septic conditions of tonsils and the back of the throat the ordinary chlorine gargle or swab should be applied every three or four hours after the initial swab with liq. cresol saponis.

A very septic socket may develop after extraction of a tooth, causing days and sometimes weeks of pain; if a swab soaked in liq. cresol saponis is firmly pushed into the socket, the relief is almost instantaneous, and a second swabbing after twenty-four or forty-eight hours is rarely necessary.

The pain inflicted in swabbing gums is practically negligible, but may be rather severe in the case of sockets.

I am indebted to Mr. H. Walker Ramage, L.D.S., Edinburgh, for the hint to use cresol.

Bo'ness, Linlithgowshire. N. C. FISCHER, M.B.

PHARYNGEAL HAEMORRHAGE DUE TO LEECHES.

THE two following rather unusual cases came under my care during a single week in one of the general hospitals. The first was admitted with the diagnosis "haemoptysis" and the other as "haematemesis."

CASE I.

Pte. J. C., aged 24, stated that upon arriving in camp at dusk in the neighbourhood of Beersheba, ten days before, he took a drink of water in his cup from a running stream. A few hours afterwards he commenced coughing and brought up some blood. This continued up to the time of admission to hospital. No sign of lung trouble could be found. The pharynx was congested and his voice was distinctly hoarse. The coughing and haemorrhage continued until, during the night of the fourth day after admission, he complained of a choking sensation and difficulty in breathing. His cough was very irritable and he expectorated a considerable amount of blood. He coughed something into his mouth which he did not expectorate, as he "feared it was a piece of his lung." On the following morning he found this had stuck to his upper gum, and upon removing it found it to be a leech about one and a half inches long, which he had presumably swallowed a fortnight previously. Since then all discomfort and haemorrhage have ceased.

The patient had been in Egypt eight months and had had no previous illness.

CASE II.

Pte. A. T., aged 31, was admitted to hospital on November 24th. He stated that he was taken ill suddenly seven days before with a tickling, irritating cough, with spitting of blood each time he coughed. He was then in the environs of Ludd in Palestine. He obtained his drinking water from one of the wells; this was drawn up in a bucket, and he always used his cup for drinking. No symptoms of haematemesis could be found. He complained of a tickling cough and sore throat, with spitting of blood. The pharynx was congested and he had pain in swallowing.

During the night of the second day after admission he expectorated half a sputum cup of pure blood mixed with a little mucus. On the following morning the right side of his face was swollen; I found what looked like dark clotted blood in the cavity left by two extracted teeth in the lower jaw, but on further examination it proved to be a leech one and a half inches long attached to the upper jaw. All haemorrhage ceased upon removing the cause of his trouble.

The patient had been in Egypt twelve months, and had had no previous illness.

I have ventured to bring these two cases under notice as the occurrence of "haematemesis" and haemoptysis arising from the presence of the leech in human subjects is sufficiently rare. It is quite possible that similar cases may arise, as it is probable that numbers of troops have drunk of water containing leeches.

As will be seen from the following report by Captain A. E. Rayner, R.A.M.C., the leech of Palestine may be found as an endoparasite of man.

The leech is lanceolate in shape, and about 1½ in. broad and 4 in. long when at rest. It is flattened antero-posteriorly, so that its ventral surface is practically quite flat; the dorsal surface is convex. Its colour is dark olive green, with a lateral stripe of gutta-percha red at the extreme edges of the body where dorsal and ventral surfaces meet. It has two circular suckers—the smaller oral sucker at the anterior end, the larger acetabulum at the posterior end. The body is divided by transverse ringed grooves into ninety-five segments. On the dorsal surfaces of many segments the nephridial openings can be seen. There are ten small black dots on the dorsal surfaces of segments at the anterior end—that is, five pairs of eyes. Of these the first and second are on the first segment, third pair on second segment, fourth pair on third segment. The fourth segment is eyeless, so that the fifth pair is on the fifth segment. There are three jaws in the oral orifice of the anterior sucker.

The leech is very actively retractile and extensile. It anchors itself firmly by the posterior sucker whilst the head and body plunge and writhe in all directions. It probably belongs to the subclass Hirudininae *Limnatis nilotica*. According to Castellani, leeches frequently occur in Algeria and Palestine as endoparasites of man, gaining entrance to the mouth or nose as he drinks from a pool. It may produce continued haemorrhage, with severe anaemia. It may act as the host for trypanosomes and other parasites.

[I am indebted to Colonel D. O'Sullivan, A.M.S., for his kind permission to publish these cases.]

J. M. BIGGS,
Captain R.A.M.C.

Reports of Societies.

VENEREAL CLINICS.

AT a meeting of the London Association of Medical Women on February 5th, with Lady BARRETT in the chair, Dr. JESSIE CAMPBELL gave an account of the work at the clinic for venereal diseases at Guy's Hospital. The patients came from the hospital itself or from outside districts, often from great distances, or were sent by private practitioners. Remarkably few belonged to the class of professional prostitutes, many being wives of soldiers or working girls. Three beds and two cots were attached to the clinic, and these were used for acute cases, or cases complicated by pregnancy, nephritis, or heart disease, also for those coming from a distance, and for children. District nurses attended patients at their homes. As all outward signs, except skin stains, disappeared after two to three injections, the patients were apt to attend irregularly, which was prejudicial to their cure. The Wassermann test was positive in a large proportion of the cases; it was often negative in pregnancy and in recurrent chancre. Of 40 consecutive patients who had undergone a full course of treatment, 27 gave a negative and 13 a positive test; of the 27 negative cases 22 were early and acute, and 5 late cases; of the 13 positive cases 2 were early and 11 late. It was thus doubtful how much reliance could be placed on the Wassermann test. Dr. TINDAL-ROBERTSON described the work at the evening clinic of the South London Hospital for Women, where her experiences were identical with those at Guy's, especially as regarded irregularity of attendance and absence of prostitutes among the patients. The tests for gonorrhoea were unreliable, and it was important that a satisfactory method of growing gonococci should be found.

Dr. AGNES SAVILL, in a year's work in the skin department of this hospital, had seen 13 cases of syphilitic and 78 cases of non-syphilitic skin disease. Of the total attendances 95 were syphilitic and 230 non-syphilitic. All but two of the syphilitic patients were married women. A syphilitic rash must be distinguished from pityriasis rosea, roseola, and drug rashes, and in the papulo-tuberculide stage from psoriasis and eczema of the palms and soles. Gummata sometimes resembled an iodide rash and condylomata a bromide rash. She had obtained very good results in gonorrhoea by ionization with a thick zinc rod and 2 per cent. zinc sulphate solution. Dr. ELSIE CHUBB said that much attention was paid to prophylactic treatment in men, while women were left altogether out of account, and this one-sided treatment would not help to eradicate the disease. Lady BARRETT said it was important to treat antenatal leucorrhoea even when no gonococci were found. Abortion did not follow careful direct treatment of the cervix. The best results were obtained by swabbing the cervix and vagina with argyrol and immediately afterwards with a 50 per cent. solution of picric acid in glycerin. Patients having had gonorrhoea should not be admitted into general maternity wards, even if apparently cured, as the disease often lighted up unexpectedly. At the Royal Free Hospital clinic the patients were also chiefly wives of soldiers and working girls who were not prostitutes, so that the suggested treatment of the prostitute class would be ineffectual in stamping out venereal disease.

NERVE INJURIES.

AT a meeting of the West London Medico-Chirurgical Society at the West London Hospital on March 1st, Dr. J. A. RICE-OXLEY being in the chair, Captain E. FARQUHAR BUZZARD read a paper on injuries to nerves, their diagnosis and treatment. He predicated a thorough knowledge of the anatomy and physiology of muscles and nerves as an essential equipment for investigation. The electric battery was not necessary, and its evidence was frequently fallacious. Apart from inspection, it was impossible to say whether nerve continuity had been destroyed, but distal pain some hours after injury showed that its immediate effect had not been destruction of continuity. He uttered a warning against too readily ascribing to hysteria the terrible sufferings of many cases of nerve injury, more especially injuries of the median and internal popliteal nerves. Relief was a difficult matter; opiates should be avoided and recourse had to bromides, phenacetin, pyramidon, etc., given at night to ensure sleep. For intractable cases injections of alcohol into the nerve were recommended. Colonels DONALD ARMOUR and PERCY SARGENT, Mr. S. H. ROUQUETTE, Major H. SOUTTAR, Captain G. RIDDOCH, and Mr. H. TYRRELL GRAY took part in the discussion, which centred round the questions—when to operate, how to treat the nerve, and the suitability of various substances for its protection. All were agreed that end-to-end suture was to be aimed at, and grafts were unanimously condemned.

Reviews.

TAYLOR'S "PRACTICE OF MEDICINE."

THE first edition of Sir FREDERICK TAYLOR'S *Medicine*[1] appeared in 1890, four years after Fagge and Pye-Smith's *Principles and Practice* and two years before Osler's rival work. It has now firmly taken the place once occupied by Bristowe's treatise, so well known to a former generation, while Osler's, with its more personal and historical touches, has succeeded Fagge and Pye-Smith's exposition of medicine as exemplified by the practice of Guy's Hospital. Sir F. Taylor, as a teacher of long experience, has admirably met the student's needs by setting forth the present state of knowledge clearly, briefly, and without the statistics and references that may appeal to the more advanced reader who is working without the ever-present object of an examination before him. Similarly, from the ordinary student's point of view, it is an advantage to have included in one volume a condensed account of skin and laryngeal diseases, on which the qualified practitioner would naturally consult special treatises, and, further, the details of treatment and the full discussion of alternative methods are hardly compatible with the requirements of space.

This volume is well balanced, exactly adapted to its purpose, and fully up to date. Since the last edition, published in 1914, the war has created new diseases, or at least brought certain affections, previously rare or unrecognized, into prominence, such as trench fever, spirochaetosis icterohaemorrhagica, and war nephritis, and these are succinctly described. Under the title "effects of strain and violent effort on the heart (soldier's heart)" an account is abstracted from Dr. T. Lewis's report to the Medical Research Committee on disordered action of the heart, for which the non-committal name of "effort syndrome" was suggested; it is at first sight rather disappointing that Sir F. Taylor does not endorse this, but perhaps the entry "effects of strain on the heart" in the last published (1906) edition of the *Nomenclature of Diseases* has influenced the President of the Royal College of Physicians in his decision. Many additions have, of course, been made, and the book has been thoroughly revised. The recent work on the treatment of acute poliomyelitis by immune serum from convalescent or recovered patients, and Allen's treatment of diabetes are duly mentioned; and the inclusion of trinitrotoluene poisoning, Dr. Cameron's views on lymphatism, and Dr. Willcox's recommendations for the dietary of beri-beri, show how carefully the changing face of medicine has been scanned. It is always possible to find something to criticize, and the method of estimation of the blood pressure, and the considerable space allotted to Arneth's count might be instanced in this case, if only to throw into greater prominence the general excellence of the work as a whole.

STUDIES IN THE HISTORY AND METHOD OF SCIENCE.

THE increasing specialization necessitated by the enormous advances of science is attended by the disadvantage that the groups of workers become somewhat isolated and acquire a narrowed horizon on which their aims are exclusively focussed. Further, in the pursuit of fresh knowledge the debt to the past is easily forgotten, and, as Sir W. OSLER points out in his succinct introduction to Dr. SINGER'S *Studies in the History and Method of Science*,[2] it is unfortunate that the progress of science makes useless the very works that made progress possible; the student is too apt to think that because useless now they have never been of value. The need for a comprehensive study of the methods of science has been met by the recent appearance of books and journals, and among these is the present collection of essays on the history of science, which, had not the war intervened, would probably have seen the light in a new *Journal of the History and Method of Science*. Most of these essays were in course of preparation before the war, and the author of the philosophical review of vitalism—the distinguished experimental embryologist, Dr. J. W. Jenkinson—was killed in action on June 4th, 1915, ten days after landing at Gallipoli.

Nearly half the volume is occupied by two scholarly and interesting contributions from Dr. Singer, to whom and to Sir William Osler the credit for the inspiration of this publication must be assigned. His analysis of St. Hildegard's scientific views and visions contains an extraordinary amount of research, presented in an attractive form and interspersed with shrewd observations, such as that though visions were the fashion and a common literary device in her times, there is internal evidence in the description of her visions that, like so many other distinguished people, she was subject to migraine with ocular manifestations. His valuable study in early renaissance anatomy contains the manuscript text of Hieronymo Manfredi's Anatomy in the Bodleian library at Oxford, transcribed and partly translated by Miss A. Mildred Westland. This text appears to be almost unknown. It was the first complete treatise on the subject originally written in Italian, and it represents with but little modification the tradition of Manfredi's predecessor at Bologna, Mondino, of whom a critical

[1] *The Practice of Medicine.* By Sir Frederick Taylor, Bt., M.D., President of the Royal College of Physicians. Eleventh edition. London: J. and A. Churchill. 1918. (Roy. 8vo, pp. xvi + 1091; 12 plates, 85 figures. 24s. net.)

[2] *Studies in the History and Method of Science.* Edited by Charles Singer. With an introduction by Sir W. Osler. Oxford: Clarendon Press. 1917. (Imp. 8vo, pp. xvi + 304; 41 plates (6 coloured), 32 figures. 21s. net.)

estimate is given. These two articles are copiously and finely illustrated by thirty-seven plates and twenty-three figures in the text, including two drawings by Leonardo da Vinci from the Windsor Castle collection. Dr. Raymond Crawfurd, the President of the Historical Section of the Royal Society of Medicine, writes on the blessing of cramp-rings—a chapter in the history of the treatment of epilepsy—and traces these rings from the time of King Edward the Confessor. Linacre, when President of the College of Physicians of London, lent his countenance to their use, which, it is suggested, may have originated in the Galenic belief that an epileptic seizure can be aborted by the application of a ligature to a limb above the starting point of the aura. In his essay on Dr. John Weyer and the witch mania, Dr. E. T. Withington details the horrors of persecution suffered by poor women who were tortured until they confessed imaginary crimes and then burnt; he points out that Weyer was the first serious opponent of the witch hunters, and that even one hundred years after the appearance of Weyer's book Sir T. Browne, the famous author of *Enquiries into Vulgar and Common Errors*, was responsible for the hanging of reputed witches. Mr. Reuben Levy throws doubt on the belief that Maimonides was the author of the unpublished *Tractatus de Causis et Indiciis Morborum*, and adduces evidence to show that it is improbable that he composed a treatise of this scope. In the concluding article, on scientific discovery and logical proof, Dr. F. C. S. Schiller, author of *Formal Logic*, discusses the limitations of the application of logic to the advance of science.

Dr. Singer is to be heartily congratulated upon the success of this beautifully printed and illustrated volume.

GAS GANGRENE.

THE monograph on gas gangrene[3] by ANDRÉ and JOSEPH CHALIER, containing as it does the full notes of the 108 cases upon which it is based, will be read with all the interest and attention due to the high repute of the authors. Its real merit is obscured, however, by the attempt they have made to give a precise meaning to the term "gas gangrene." Their method appears to be not to make the terminology fit the facts, but to select the clinical facts that can be brought within the legitimate meaning of the term. Thus they limit themselves to the consideration of a condition that is never originated in the head, neck, or trunk, and that is never associated with the presence of pus. If the reader will remember that the book is concerned only with those manifestations of "gas infection" which arise in the fleshy parts of the extremities, and are not characterized by suppuration, he will not be disappointed, however much he may wish the authors had adopted a wider standpoint, and employed their talent for observation and description for a more comprehensive purpose. A surgeon who has not seen gas gangrene will put the book down with a clear conception of a very important phase of infection by the *B. perfringens* and other anaërobic organisms, alone or associated with aërobic. The authors have apparently not met with the type of case, so frequent in British hospitals, at some times and places where the gangrenous process is limited to a single muscle or muscle group, and where the infection can be, so to speak, eradicated by ablation of the muscle or muscles up to their attachments. Nor do they mention, or, at any rate, lay due stress upon, the share of acidosis in producing the general toxic state—an omission reflected in their account of treatment. Three great "forms" are classified—the circumscribed, the diffuse, and the massive. Yet it seems necessary even for the authors to append a good sprinkling of "varieties"; and though they state that these may all be brought within the primary "forms," it requires no little strain. Withal, and notwithstanding what may appear vigorous criticism, the content of the monograph is valuable, quite valuable enough to withstand much more trenchant attack.

[3] *La Gangrène Gazeuse.* By André Chalier, Ancien Chef de Clinique Chirurgicale à la Faculté de Lyon, and Joseph Chalier, Ancien Chef de Clinique Médicale à la Faculté de Lyon. Paris: Félix Alcan. 1917. (Demy 8vo, pp. 388; 59 figures. Fr.8.80.)

NOTES ON BOOKS.

WE have received from Lieut.-Colonel J. LLOYD JONES, I.M.S., a reprint of an article by him on "The young delinquent, his care and after-care," published in the *Social Service Quarterly*, Bombay, January, 1917. Colonel Lloyd Jones is Chairman of the Managing Committee of the David Sassoon Reformatory, Matunga, and in this article he reviews briefly what has been done in this direction. He points out that in Bombay provision has to be made for delinquents at an earlier age than at home—namely, from 8 or 9 onwards to 18. He relates the foundation, by the benevolence of the late Mr. David Sassoon, of the Matunga Reformatory and Industrial Institution (now mainly kept up by the Government), giving some details of the system pursued, and urging the importance of manual instruction under competent teachers, who know how to teach not merely how to manufacture, so that the pupils may become qualified for employment in suitable handicrafts, amongst which he mentions motor car and other engineering work. He deprecates street trading for juveniles. He rightly lays stress on the influence on character of a wise and sympathetic superintendent, able to maintain good discipline, and to direct into useful channels energies previously misdirected, consideration being taken of the mental and physical degeneracy by which so many juvenile delinquents are handicapped. After-care by voluntary associations is rightly insisted on as indispensable for success.

The volume on *Concrete Cottages*,[4] by Mr. ALBERT LAKEMAN, is a highly practical work, illustrated by a number of photographs and drawings and by the report of the assessors who adjudicated in the competition for concrete cottages to be erected at a cost not exceeding £125, the amount to be exclusive of builder's profit, sanitary fittings, land drainage, etc., or the cost of drains and their connexion with sewers. The plans and drawings show considerable variety of treatment, the design which won the first place having a flat roof, a feature which may or may not prove to be well adapted to the climatic conditions of Great Britain. One of the sections of the book deals with methods and details of construction, four types of walls being enumerated—namely, those made of (1) hollow or solid blocks, (2) of concrete, plain or reinforced, filled in between vertical shuttering built up *in situ*, (3) concrete filled into horizontal moulds, each producing one side of the building and raised into position when sufficiently hardened, and (4) concrete poured in a more or less liquid state into wood or iron moulds erected complete to form the structure. The last plan does not seem to be of practical importance unless large numbers of cottages are being erected at one time. The book also contains designs for small garages and farm buildings, and a section giving general information for the builder as to plant and materials. The book is not one which could be criticized without going into details which would take us too far, but it can confidently be described as a thoroughly practical guide.

[4] *Concrete Cottages: Small Garages and Farm Buildings.* Edited by Albert Lakeman, M.S.A., M.G.I. 1918. London: Concrete Publications, Ltd. (Roy. 8vo pp. xii + 170; 169 figures. 5s. net.)

MEDICAL AND SURGICAL APPLIANCES.

An Improved Tourniquet.

DR. HEATON C. HOWARD (London, W.) has devised a modification of Petit's well-known tourniquet. It possesses the following features: (1) The pad is separated from the band, so that when the requisite amount of pressure is applied there is a space on either side of the pad by which complete constriction of the limb is avoided. (2) A counter pull, enabling the band to be applied easily and accurately. (3) A fastening providing a simple method of fixing the band, and of releasing the band and pad. It has been in use for over two years, and encouraging reports have been received. It is made by J. H. Montague, 69, New Bond Street, London.

ACCORDING to the *New York Medical Journal*, the laboratory of the U.S. Army Medical School at Washington shipped 8,843,047 c.cm. of vaccine to Europe in the six months between April 1st and November 1st, 1917. Sufficient antityphoid vaccine has been sent to inoculate 1,051,604 men; of the double vaccine (paratyphoid A and B) to vaccinate 77,352 men. Since production of a triple vaccine (typhoid and both paratyphoids) on a large scale was begun, enough has been shipped to vaccinate 1,489,902 men. Each cubic centimetre of the triple vaccine contains 1,000,000,000 typhoid bacilli and 750,000,000 of each of the two paratyphoids. The United States army uses the Rawling strain of typhoid bacillus, isolated from a patient at Netley in 1900. The stock from which the typhoid vaccine is made is composed of lineal descendants of these germs propagated in artificial mediums during the last seventeen years. The paratyphoid vaccines are a combination of four strains, two British and two American.

COMPULSORY RATIONS.

REGULATIONS FOR INVALIDS.

GENERAL REGULATIONS AS TO PERMITS FOR INVALIDS.

In view of the difficult position in which doctors are likely to be placed in granting certificates to invalids for extra quantities of certain foods, it has been decided by the Ministry of Food, on the advice of the Committee of Reference of the Royal Colleges of Physicians and of Surgeons, and of the Central Medical War Committee, that for the time being these can only be allowed as follows:

1. *Sugar.*—Extra sugar shall only be allowed for persons with difficulty of swallowing solids due to organic disease—for example, cancer of the tongue, cancer of the oesophagus, gunshot wounds of the jaws.

2. *Meat, Butter, and Margarine.*—Extra meat and fat may be allowed for patients suffering from diabetes and from tuberculosis, also from coeliac disease and pancreatic insufficiency. No extra meat can be allowed for making beef-juice, beef-tea, or broth.

3. *Milk.*—Priority may be granted for milk as follows: In cases of acute illness—for example, pneumonia, typhoid fever, acute abdominal conditions—the doctor in attendance may give a certificate, on the receipt of which the milkman shall be empowered to supply the quantity of milk for one week. This certificate shall not extend for a longer period than one week, unless permission has been obtained from the Local Food Office. Extra milk may also be allowed for pregnant and suckling women; for invalids suffering from the following chronic diseases: nephritis, tuberculosis, certain gastric and intestinal conditions—for example, gastric and duodenal ulcers, gastrostaxis, enteritis, dysentery, and diarrhoea; recognized diseases and disorders associated with malnutrition, and for patients who are unable to take solid food.

Procedure.—Complete instructions with respect to the above are being issued to Local Food Offices, to which all applications must be sent, accompanied by a certificate signed by the doctor in charge of the patient. Each certificate must name the disease or condition from which the patient is suffering, and on account of which an extra ration is requested.

Duration of Validity of Permit.—No permit for extra rations shall be valid for more than one month.

Bread and Cream.

The Committee state further, with regard to bread and cream: (*a*) There is not sufficient evidence that the bread at present used is in any way injurious to health, nor that any disease requires bread made from "superior flour." (*b*) There is no disease for which cream should be allowed. Pending further instructions all inquiries respecting bread or cream should be referred to the Ministry of Food, Palace Chambers, London, S.W. 1.

DIETARIES FOR TUBERCULOUS PERSONS IN SANATORIUMS AND HOSPITALS.

The Local Government Board, in consultation with the Ministry of Food, has had under consideration the position of institutions for the treatment of tuberculosis in relation to the system of compulsory rationing now in force in London and the Home Counties, and to be extended, as is understood, to the rest of the country on March 25th. The following scales have been temporarily approved by the Food Controller. They are to apply only to patients actually suffering from tuberculosis. Officers of sanatoriums, unless themselves suffering from tuberculosis, must comply with the general scale of rations—namely, meat 1¼ lb. (children under 10 to be allowed 10 oz.), butter and margarine 4 oz., sugar 8 oz. For the purposes of the rationing scheme "meat" is defined by the Ministry of Food as including butcher's meat and pork, bones, offal, suet and sausages, bacon and ham, cooked, tinned, preserved and prepared meats, venison and horse meat, and poultry, rabbits, game and hares. In certain instances a larger amount of these foods may be regarded as the equivalent of the rationed quantity of butcher's meat.

Dietaries for Tuberculous Persons in Sanatoriums and Hospitals. Weekly Allowance of each Article "as Purchased."

	For Persons without much Constitutional Disturbance.		For Persons with Constitutional Disturbance.	
	Men.	Women.	Men.	Women.
Milk	14 pints	14 pints	21 pints	21 pints
Meat (including suet) ...	3½ lb.	3 lb.	3½ lb.	3 lb.
Bacon	½ lb.	½ lb.	½ lb.	½ lb.
Fish	½ lb.	½ lb.	1 lb.	1 lb.
Cheese	½ lb.	½ lb.	4 oz.	4 oz.
Oatmeal	½ lb.	½ lb.	½ lb.	½ lb.
Pulses	½ lb.	½ lb.	—	—
Bread	4 lb.	3 lb.	3 lb.	3 lb.
Flour	½ lb.	½ lb.	½ lb.	½ lb.
Potatoes	5 lb.	4 lb.	2 lb.	2 lb.
Cereals	¾ lb.	¾ lb.	¾ lb.	¾ lb.
Sugar	½ lb.	½ lb.	½ lb.	½ lb.
Jam, syrup, etc.	¾ lb.	¾ lb.	¾ lb.	¾ lb.
Margarine and other fats	10 oz.	10 oz.	10 oz.	10 oz.

The scale for children under 10 will be three-fifths of the corresponding scale for the adult woman.

NOTE.—At any time it may be necessary to substitute equivalent amounts of other foodstuffs for not more than 1 lb. of meat or 7 pints of milk per week.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee, held on Tuesday, February 12th, nineteen cases were considered, and £198 voted to eighteen of the applicants. The following is a summary of some of the cases relieved:

M.B., C.M.Aberd., aged 67, who practised in India and Africa, and acted as ship's surgeon. Left hemiplegia recently. Only income, interest on £70 invested. His wife is now trying to obtain some employment. Has three daughters, all married, and unable to help. Voted £26 in twelve instalments, and referred to the Guild.

Widow, aged 51, of M.R.C.S.Eng. who practised at Stalham, Norfolk, and died in April, 1917, from tuberculosis. There were seven children, three of whom have died from tuberculosis. The eldest son, aged 22, is a lieutenant in the army. Only permanent income £15. Applicant has recently had to give up post as bookkeeper, so as to enable her to look after the other three children, who are delicate. Wants help towards the education of the youngest boy, aged 12. Voted £5, and referred to the Guild.

Widow, aged 40, of M.B.Irel. who practised at Hampstead and died in 1908. Applicant was left without means, and one daughter, now aged about 16, who is at a boarding school. Friends assisted her to establish a nursing home on the East Coast, but, owing to the war and air raids, she had to give it up in 1915. Has since had several posts, but, owing to indifferent health, has been unable to continue; is now looking for light employment. Voted £5, and referred to the Guild.

Orphans—boys, 17 and 15, girl, 12—of L.R.C.P.Glasg. who practised near Manchester and died in 1917. Mother also dead. Father died leaving debts and no provision for the children. Friends are endeavouring to collect money to provide them with a suitable home and education, and application has been made to the Fund for assistance. Voted £25, and referred to the Guild.

Widow, aged 69, of M.R.C.S.Eng. who practised in London, and died in 1893. Applicant is crippled and quite helpless. Income, rent of one house, £44. This is taken up by paying mortgage. Earns a little by painting. Relieved three times, £34. Voted £12 in twelve instalments.

Widow, aged 55, of M.R.C.S.Eng. who practised in Wiltshire and died in 1914. Applicant was left entirely without means, with one daughter, now aged 24, who is unable to help. Applicant is now working as a domestic help at a very small wage. Relieved five times, £40. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, MARCH 9TH, 1918.

LUNACY LAW AND EARLY MENTAL DISORDERS.

THE need for amendment of the Lunacy Law, recently referred to in these columns, is a matter of such importance and has awaited solution so long that no apology is needed for reverting to it and examining it more fully.

The essential complaint is that mental disorders, so far as the great bulk of the people is concerned, have been regarded and treated from a different standpoint and on a different basis from physical disorders, with the result that the sufferers from mental disorders have failed to benefit from the modern advances in our views of disease and its prevention. Though in no department of medicine is the need greater for the earliest and most skilled treatment, yet hitherto these disorders have not been looked upon from a public health point of view, and in numberless cases the tendency of the existing law is to cause remedial treatment under the most advantageous conditions to be postponed until the disorder is so firmly established that the chances of cure are much lessened. This arises from the fact that the law governing these matters starts from the point of view of the lawyers, who are concerned to arrange how the public is to be protected from danger, how the individual is to be saved from false imprisonment, how his money is to be protected if he is wealthy, and how the money is to be found and spent for his maintenance if he is not. They do not look at the matter from the point of view of the public health, which asks how these sick persons are to be best treated so that they may be cured as early and in as many cases as possible. The lawyers' point of view is not unimportant, but it has been allowed to overweight the administration, has failed to a large extent from the public health point of view, and has inflicted hardships on the individual not foreseen by the Legislature at the time the law was made. Since then movements made in the interest of the public health have required some relaxations of the old rigid legal and financial views. Of this tendency instances are afforded in the Mental Deficiency Act, 1913, with its approved homes, in the compulsory powers for dealing with infectious diseases and tuberculosis, and in the financial support given to clinics for venereal diseases.

The medical profession, and the British Medical Association in particular, have for long years been alive to the defects and have taken steps to urge their remedy, but in vain. The war in this, as in other matters, has made it necessary to deal with the problem in a fresh, untrammelled way, and has provided an object lesson which should greatly aid us in reforming our civil procedure.

The ways in which the law acts as a deterrent to early treatment are in the main three. The first is the need for certification before any patient can be treated in a rate-aided institution for mental diseases; the second is the stigma of pauperism which the law inflicts on those so treated; the third is the want, for the most part, of arrangements for dealing with early cases of mental disorder in such a way as not to brand the ailing person with insanity in his neighbours' eyes and all the disastrous consequences that flow from this, while yet maintaining a procedure which shall guard the safety of the individual and the public. In the army none of these difficulties stand in the way; large numbers of cases of recent mental disturbance have been dealt with in special hospitals for "functional nervous disorders" without certification in the vast majority of cases. Thus Major Eager, R.A.M.C., reports that at the Lord Derby War Hospital at Warrington, out of 3,800 cases, certification for transfer to an institution for the insane became necessary in 192 cases only, and in many of these only after many months' treatment without certification. At the Maudsley Hospital in London, which is now used by the War Office for similar purposes to those for which it was intended in civil life, the patients are treated without certification; whereas when the London County Council again takes over the hospital, unless the law is first changed, it will only be able to use it for certified patients, and the institution will technically be an asylum, instead of a hospital for voluntary patients and early cases as intended by the donor. The soldiers suffer from the stigma neither of insanity nor of pauperism, military discipline supplies the necessary powers of control, and there is no obstacle to the best treatment being supplied at the earliest stage of the illness.

What is urgently wanted is to bring these advantages within reach of the great mass of the civilian population when they are in danger of mental breakdown. Some reformers would advocate a complete recasting of the lunacy laws, and there are arguments in favour of such a course, but at the present time any such attempt would certainly involve great delay, and perhaps prove impracticable. The judicial system of certification which is the basis of the present law is common to the lunacy laws of practically every other country, and constitutes an important safeguard which Parliament is not likely to abandon, and there are large numbers of chronic cases for whom the provisions of the present law are desirable, and in the main unobjectionable. Moreover, there seems to be no great difficulty in drafting amendments to the present law which would achieve the desired results. Legislative proposals with similar objects were made in 1889, 1890, 1904, and 1905, and in 1914 the then Home Secretary (Mr. Herbert Samuel) promised to see what could be done in this direction by administrative action, without, however, any apparent result. The present time, when it is being proposed that the provision for persons of unsound mind now made under the Poor Law should be transferred to the county councils, together with all the Poor Law buildings, and when there is a prospect that all matters affecting public health may be brought under a Ministry of Health, would seem to be a favourable moment for bringing the question again before Parliament.

Generally speaking, what it is sought to bring about is that treatment on hospital lines shall be available for mental disorders, and that the procedure shall be of such a character that the patient on his own motion, or on the advice of his friends, shall be ready to take advantage of it at an early stage of his malady, as he would take advantage of an ordinary hospital, without coming under the Poor Law and without certification. The patient must not be brought into contact with the chronic insane, and every care must be taken that the hospital is not associated in the public mind with confirmed insanity.

While there is general unanimity as to the broad aims, when it comes to giving effect to them in detail

many debatable matters arise. For instance, it is asked what classes of mental disorder are to be considered suitable for such treatment. It is agreed that confirmed cases of long standing are unsuitable, but among the cases of recent origin some are of very gradual onset, and for a long time, or, indeed, throughout the whole period of their malady, it may be doubtful whether they could properly be certified as insane. Other cases may at the onset be acute and yet the prospect of recovery may be hopeful, so that they are not to be accounted confirmed cases. Is it desirable to distinguish cases on the ground of certifiability or on the grounds of recent origin and probable curability? For instance, are suicidal and violent cases all to be relegated to the asylum under certificates, or are they to be given the benefit of hospital treatment uncertified? Again, what powers of control and detention are to be given? This necessity may arise at any time in a recent or doubtful case, if the patient is not to be certified forthwith and sent to an asylum.

Another question is, What other cases are to be received in these hospitals? It is important not only that they should have a name, such as "Hospital for Nervous Disorders," that will not alarm or deter the patient, but also that the name should accord with the fact, and that patients suffering from disorders of the nervous system other than mental cases should be treated there; in the opinion of some its doors should be open wide to accept cases of organic and functional nervous diseases of all kinds.

We are now in a position to consider how the buildings for this purpose should be provided and maintained, where they should be situated, and the nature of the accommodation they should afford. Clearly the cost must fall on the public purse, presumably through the county councils. Possibly a Poor Law building may prove useful in some cases. It seems clear that the buildings, however provided, should be quite separate from the asylums; whether any of them should be wards or blocks of general hospitals is a matter for discussion, but there can be little doubt that they should where possible be associated with, even though locally distinct from, hospitals with teaching schools, so that both for students and practitioners the practical study of insanity and its treatment may be made feasible. Others would be required in every large centre of population. In all cases in-patient as well as out-patient accommodation would be necessary and facilities for research work on the spot and for the use of new methods of treatment. In the past differences have arisen as to whether such hospitals should or should not come under the supervision of the Board of Control, but opinion seems to point more and more to an affirmative answer, particularly with the prospect of the establishment of a Ministry of Health to which the Board of Control would presumably be subordinated. The question also arises whether notification of cases admitted to these hospitals is necessary or desirable, and if so, under what conditions, how soon, and by whom. It has also been suggested that patients declining to avail themselves of treatment should be notified by their doctor to the medical officer of health.

So far we have considered the provision necessary for those dependent upon rate-aided institutions. An amending Act should, however, include provisions granting similar facilities under proper safeguard to the well-to-do. For though these classes have had the advantage that they could be admitted as voluntary boarders to licensed houses or registered hospitals, there are many cases for which skilled treatment is desirable who are able and willing to pay for it, but are unwilling to go as voluntary boarders where insane patients are received. This provision has not been extended to rate-aided institutions, and it is a hardship on those who could not afford to pay for themselves in a licensed house or registered hospital that it has not been open to them to enter the public asylums as voluntary boarders. It might be well to amend the law in this respect too, though it is doubtful whether the need would be so urgent if the proposals outlined above for special hospitals were carried out.

BARS TO THE VICTORIA CROSS.

IN the summary of casualties and honours in the military medical services in 1917, which was given in the JOURNAL of February 9th, the belief was expressed that a clasp to the V.C. had been given only some four times. Dr. Wilfred L. Myles (Pontllanfraith) writes to suggest that this is incorrect, and that the only two clasps awarded since the institution of the decoration in 1856 have been those gained by Temporary Lieut.-Colonel A. Martin-Leake, R.A.M.C., and the late Temporary Captain N. G. Chavasse, R.A.M.C. Our correspondent bases his opinion on a passage in the introduction to the *History of the Victoria Cross*, by Philip A. Wilkins, published in 1904: "The Warrant authorizes a bar to be attached to the riband for any further act of conspicuous bravery on the part of the owner of the Cross, but no such bar has ever yet been issued, although statements to the contrary have frequently been made." Dr. Myles supposes that the mistake arose from the fact that three of the Crimean winners of the Cross—Admiral Sir W. N. Hewett, R.N., Captain G. F. Day, R.N., and Sergeant-Major John Berryman, 17th Lancers—were mentioned more than once for bravery during that campaign, whence the belief that a bar or clasp had been awarded them. As no official list of winners of the Victoria Cross since its institution is published, we have submitted the question to the War Office, whose reply confirms Dr. Myles in his view. The Assistant Military Secretary informs us that the only recipients of bars to the Cross have been the late Captain Noel Godfrey Chavasse, V.C., M.C., R.A.M.C., and Captain (now Temporary Lieut.-Colonel) Arthur Martin-Leake, V.C., R.A.M.C. The medical profession has every cause to feel proud of this unique distinction which is now placed beyond the region of doubt.

MALARIA CONTROL.

Two experiments on malarial control are related in Bulletin No. 88 of the United States Public Health Service. A town or community unit was taken, and antimosquito measures alone were applied to it, while in a rural unit each family or house received individual consideration, being protected by screening, or having quinine given in immunizing doses, supplemented by the sterilization treatment of carriers upon their detection by blood examination. The plan for these studies was prepared by the late Surgeon R. H. von Ezdorf, formerly in charge of malarial investigations. Active field operations were begun in April, 1916, under the immediate supervision of Assistant Surgeon R. C. Derivaux, one of the writers of the present report. Surgeon von Ezdorf died suddenly in September, 1916, and the completion of the studies was carried out by Drs. Derivaux, Taylor, and Haas. The results of the first experiment were very encouraging, and the amount of malaria in the township was greatly diminished and kept under good control. The results of the second experiment, as might be expected, were less convincing, especially that part dealing with the prophylactic use of quinine. Two doses of 5 grains each were directed to be taken in the morning and evening of two successive days each week, preferably on Saturday and Sunday,

making a total of 20 grains a week. For sterilization adults were given 10 grains daily, in two doses of 5 grains each in capsule, for thirty consecutive days. Such doses are much too small, and have recently been shown on numerous different occasions to be totally inadequate. The wonderful figures given are manifestly due to the infrequency of the blood examinations. If these had been carried out in greater detail such statements as the following could hardly have been made: "Of the 69 carriers to whom quinine was given for sterilization (in the amounts mentioned above), 62 remained under observation and were available for re-examination; of this latter number, 3 were found to have remained infected, a reduction or 'sterilization rate' of 95.17 per cent." This looks very marvellous, but an explanation is forthcoming when another statement, made on page 44 of the report, is taken into account—namely, "No re-examinations (of the carriers) were made upon completion of treatment, determination of the sterilization being provided for in repetition of the general parasite index." Even granting that this index was compiled from thick blood films, one examination is quite insufficient for estimating whether a patient is cured or not. It can hardly be doubted that if the 62 individuals had been followed more closely, and numerous blood examinations made, many would have been found still to be infected. Further, no risk of reinfections is taken into account. Though these results are open to criticism such experiments are not to be condemned. On the contrary, it is only by conducting well-thought-out schemes like those described that progress in the stamping out of malaria will come about. Destruction of mosquitos and individual prophylaxis by living in mosquito-proof houses seem to be more useful than quinine administration, though the latter cannot be dispensed with as an adjunct.

THE FUTURE OF THE INTERNATIONAL RED CROSS.

It is to be feared that there is no longer any room to doubt that seven officers and forty-seven other ranks R.A.M.C. and eight women nurses lost their lives when the hospital ship *Glenart Castle* foundered. She was outward bound and had no wounded on board. The Admiralty states that it is "quite clear that she was sunk by an enemy submarine." She appears to be the seventh hospital ship torpedoed by enemy submarines. One of these was the Franco-Russian hospital ship *Portugal*, attacked on March 30th when near Of, in Eastern Anatolia. She sank in one minute with the loss of one hundred lives, including many women. This feat of war may have been accomplished by Austria, but the other six ships, all British, were torpedoed by German naval officers, who well knew what they were doing. The first hospital ship attacked seems to have been the *Asturias* when off Havre on February 1st, 1915. The torpedo missed then, but on the night of March 20th–21st, 1917, she was struck by one better aimed; 31 of the medical services and crew were killed, 39 were injured, and 12, including 2 women, were drowned. The hospital ship *Gloucester Castle* was torpedoed in mid-channel on the night of March 30th–31st, 1917, but all the wounded were saved. The *Donegal* was torpedoed on the evening of April 17th, 1917, and 29 wounded and 12 of the crew were drowned. The *Lanfranc* was torpedoed on the same evening, when 19 British lives were lost and 15 German wounded drowned; 152 wounded Germans were rescued by British patrol ships which the Germans failed to sink. The *Dover Castle* was torpedoed in the Mediterranean on May 26th, 1917, at 6 p.m., and again at 8.30 p.m.; six men were killed by the explosion, but all others on board were saved before the vessel sank. The *Rewa* was torpedoed, like the *Glenart Castle*, in the Bristol Channel, at midnight in the first week of January, 1918; all the wounded were saved but three of the crew were missing. The *Glenart Castle* had had previous experiences of the risks of this war. On August 15th, 1914, when called the *Galician*, she was held up by a German converted merchant cruiser (*Kaiser Wilhelm der Grosse*) while homeward bound from Capetown. Next day the German cruiser signalled, "On account of your women and children I will not sink the ship." By March 1st, 1917, wretchlessness of most unclean thinking had brought the German mind to a much lower ethical state. On that day the ship, which meanwhile had changed its name and become a hospital ship, was badly injured, presumably by a torpedo, in the Channel, but all the wounded she was then carrying from France were saved and the ship herself was got into harbour and repaired. Other British hospital ships sunk were the *Braemar Castle*, *Anglia*, and *Britannic*, but it was never conclusively proved that their loss was due to torpedoes and not to mines. But we may rest the accusation on the seven hospital ships deliberately torpedoed. The accusation lies against the German people, as a whole, but particularly against the German Emperor and Empress, the heads in that country of the organization of the Red Cross, whose symbol they had sworn to respect; and against the German intellectuals who justify the actions of their rulers. The manifesto of some eighty or ninety German professors, issued at the beginning of the war, justifying the atrocities then committed only in Belgium, will not have been forgotten, but it is not so generally known that by a recent comb-out of all the German universities the signatures of some nine hundred professors and the like have been obtained to a similar pronouncement. The officers and men of the R.A.M.C. and the nurses who have lost their lives in these ships gave them to their country and to the great cause for which the Allies are fighting as truly as the men killed at Mons, or Ypres, on the Somme, or at Vimy Ridge, or Messines. The heartfelt sympathy of the profession they have honoured will go out to their relatives. But there is the wide general question, What is to become of the Red Cross system? Germany, which was a party to the conventions, broke all her undertakings at the very beginning of the war, as was shown last week in the quotations from the white paper, and has gone on breaking them ever since, as is shown by the torpedoing of hospital ships to-day. Can she be admitted to any international organization of the Red Cross in the future? What guarantees for good behaviour could she give which any other nation will accept? And what is the position of the Austrian Red Cross? It held an International Red Cross Conference less than a year before the war, and though few Red Cross atrocities have been traced to the Austrian Empire, it is a thick and thin supporter of the German Empire.

THE ONWARD MARCH OF TUBERCULOSIS.

The world-wide limitation of the supply of foodstuffs and the consequent restrictions of civilian dietary have begun to show varying results as regards public health. Reports from crowded communities go to prove that in many respects there is a diminution of disease of the gouty type, so often attributable to dietetic errors, but a decided increase in tuberculosis. The city of Vienna, always a hotbed of tubercle, has suffered a great extension of the disease and a marked rise in the death-rate, and similar results are only too likely to follow in other large cities with restricted food supply where the disease has already become firmly established. Mindful of this probability, the municipal authorities in Chicago[1] have taken vigorous steps to cope with the danger, and since August last the whole State of Illinois has been subject to drastic regulations, enforceable by fine or imprisonment, whereby all cases of open tuberculosis are kept under close observation, and debarred from transgressing the well-known precautionary measures for the protection of themselves and their immediate surroundings. School children

[1] City of Chicago Municipal Tuberculosis Sanitarium. *Monthly Bulletin*, January, 1918.

are rigorously protected from all known sources of infection, whether in the home or the classrooms, and the sale of milk, groceries or other provisions on premises occupied by a consumptive person is absolutely forbidden until such person is removed or rendered innocuous by arrest of the disease. The time would appear to be ripe for some such compulsory powers to be provided in this country. Not only are the existing measures insufficient for their purpose but they are not even enforced. It would appear that notification has served to detect only a small proportion of the existing cases of tuberculosis, and the majority of them must have been sources of danger for many months. Information and instruction have been widely disseminated, but hardly any attention has been paid to the teaching that they have conveyed. The country has accepted compulsion with respect to food supply in order to assist in checking the advance of the visible enemy on the Continent, and it is to be feared that only similar compulsion will serve to stop the onward march of the invisible, but not less deadly, enemy that threatens us at home.

LUMBAR PUNCTURE FOR OBSTINATE HEADACHE.

IT has long been known that severe headache results in many cases from increased intracranial pressure. Instances have been recorded in which relief from such headaches has occurred after the spontaneous discharge of cerebro-spinal fluid from the nose or from the ears, or from both. Hence it is not unnatural to suppose that severe recurrent headache may in some cases be due to sudden increase of the pressure of the cerebro-spinal fluid, whatever the cause of this increase may be, and that lumbar puncture should relieve such headaches. Professor Mingazzini of Rome has recently[1] published an account of forty-seven patients treated on these lines. All these patients had more or less permanent or continuous headaches not relieved by the ordinary methods of medical treatment; six were men, forty-one women. Cases with tuberculosis, syphilis, granular kidney, chronic alcoholism or excessive tobacco smoking, epilepsy, and intracanial tumour, were excluded from this series of patients. In every case the cerebro-spinal fluid withdrawn was found to be normal on examination, free from globulin, and containing only a few lymphocytes. As a rule, the lumbar puncture made the headache worse for a few days, but a definite cure was obtained in twenty-four cases and a considerable improvement in fifteen more. No benefit resulted in the remaining eight. One patient, a woman of 60, who had had frequent headaches since her youth and daily for the preceding six months, was cured by a single lumbar puncture; another patient, a girl of 22, who had had headaches for two years, after typhoid fever, received no benefit from the puncture. It was noted that if the pressure of the cerebro-spinal fluid was normal or low, lumbar puncture failed to relieve the headache; it was successful where the pressure was found to be high. The results seemed independent of the quantity of fluid withdrawn; thus no improvement might follow the removal of 15, 20, or even 30 c.cm., while cure might follow the withdrawal of 10 or even 5 c.cm. Analysis of the histories of the patients seemed to show that the treatment acted best in cases in which the headaches had begun at the age of 10 or 20, and had later become permanent for no appreciable cause. The patients not improved by the puncture were those in whom the headache had been permanent from the outset, or had begun later in life and become permanent after lactation or the onset of some illness, or was associated with a neurosis, such as trigeminal neuralgia or epilepsy. Permanence of the headache for more than a year seemed to make a cure by lumbar puncture unlikely. The pathology of these headaches Professor Mingazzini leaves, as he found it, obscure. They are thought to depend on increase in the quantity and pressure of the cerebro-spinal fluid, due to some upset in the balance between secretion and absorption. Some connexion between the choroid plexuses, the main secretors of the fluid, and glands with internal secretions, such as the ovaries or testes, has been thought to exist; this would explain, in part, the frequency of monthly headaches in women and the general tendency of headaches to grow less with advancing years.

[1] *Il Policlinico*, Sez. Medica, Rome, xxiv, July, 1917.

EPIDEMIC JAUNDICE IN A DANISH ISLAND.

DR. J. KAMP and Dr. T. B. Wernöe[1] state that in the Danish island of Bornholm a disease prevailed for many years the chief characteristics of which were jaundice, diarrhoea, and extreme prostration. In the period 1900–1915 there were between 200 and 250 cases among a population of only 5,000 to 6,000. In 1908 alone there were 70 cases, and there were 48 in 1912. In other years there might be only about a dozen cases. The village of Nexö was the centre of this disease, and even the sporadic cases observed at a distance from it could invariably be traced back to Nexö. Besides the jaundice, which usually lasted many weeks, there was tenderness over the gall bladder, and the area of liver dullness was increased. The watery, mucous stools were often blood-stained, and the associated colic was, as a rule, confined to the umbilical region. The diarrhoea was intractable and persisted for weeks and even months. The patient's general condition recalled the typhoid state, and complications were numerous, including haematuria, haemorrhage from nose and mouth, bronchopneumonia, myocarditis, and abscess of the liver and brain. The disease would break out again and again in the same house, attacking the same or different persons at irregular intervals. In such houses the domestic animals, notably calves and young pigs, suffered from recurrent attacks of severe enteritis. When, in 1914, steps were taken to isolate the patients in hospital, the number of cases soon diminished, and during the last three years none occurred. Examination of the blood, faeces, and urine was usually negative; only twice was the paratyphoid B bacillus found. It was also found twice in material obtained from sick calves and pigs. On these rather slender grounds the authors attribute the disease in both man and domestic animals to this microbe, which, they suggest, was imported to the district from California by an old workman who had contracted a dysentery-like disease there as a young man. He suffered subsequently from blood-stained diarrhoea every spring and autumn, and had recovered from a liver abscess. He did not seek medical aid until he was 60 years of age and moribund. The examination of the blood, faeces, and urine in this case was negative.

TUBERCULOSIS IN CHILDREN.

A COMMITTEE of the National Association for the Study and Prevention of Tuberculosis in America has published certain standards for the diagnosis of tuberculosis in children. The report has been critically examined by Dr. M. Fishberg of New York, and his remarks[2] contain points of interest, but many of them apply only to pulmonary disease, whereas the report of the committee deals with tuberculosis as a whole. He objects to the idea of standardization of diagnostic methods on the ground that many of the symptoms so standardized may be caused by other pathological conditions. Pulmonary tuberculosis in children between 5 and 10 years of age is as seldom met with in American clinics as in our own, but a very large proportion of children between those ages show a positive reaction to tests. The tuberculous lesion which is so fatal to infants under 3 is of bronchopneumonic type, and is only too common. Tracheo-bronchial adenopathy is frequently present in the first decade, and may give rise to

[1] *Ugeskrift for Laeger*, November 1st, 1917.
[2] *New York Medical Journal*, November 24th, 1917.

symptoms, and even physical signs, which are liable to be misinterpreted. Dr. Fishberg considers that the classification of such cases as consumptive and their treatment by segregation from the ordinary round of life is greatly to be deprecated, since the vast majority do perfectly well without any treatment at all.

THE CASE-BOOK OF SHAKESPEARE'S SON-IN-LAW.

DR. R. W. LEFTWICH read an amusing paper before the Shakespeare Association on March 1st on the case-book of Doctor John Hall, Shakespeare's son-in-law, who practised in the early part of the seventeenth century at Stratford-on-Avon. The original MS. of the case-book—a small duodecimo volume—is in the British Museum. The 180 "cures" which it described were arranged in no sort of order; only 21 were dated, and Hall's syntax was so awkward and his Latin so much abbreviated as to make the descriptions in parts unintelligible. One of the cases, for example, was marked "Feb. 3," which looked like a date, but must have meant tertiary fever. Hall's own practice, for which, in Dr. Leftwich's opinion, he had been licensed by the Bishop of Worcester, extended as far from Stratford-on-Avon as Gloucester, Northampton, and Ludlow. Yet he was no very skilful physician, even judged by the standard of his time. He was weak in details of diagnosis, though of details of a less relevant order he was full; his female patients, for instance, were described as fair, pious, and chaste, and many of the cases ended with a pious reflection. His armamentarium was almost exclusively herbal. In mentioning metals and stones as therapeutic agents Shakespeare was in advance of his son-in-law. Hall had a liking also for the disgusting remedies of the Middle Ages. One of his prescriptions was white wine with ten crushed garden worms, but the patient so treated declared himself deeply grateful, and that Hall had been a father to him! He did not often dip into astrology, though he gave occasional directions as to the taking of medicine at the time of new and full moon. It was claimed for him that he was the first to use anti-scorbutic remedies—various grasses and watercresses in beer. Dr. Leftwich concluded by observing that it was hard to forgive Hall for his silence respecting Shakespeare. With the opportunities of a Boswell, he left not a biography but a case-book.

THE President of the Local Government Board has appointed Mr. J. B. Lawford, F.R.C.S., consulting ophthalmic surgeon to St. Thomas's Hospital, to be an additional member of the Advisory Committee appointed to advise the Board on matters relating to the care and supervision of the blind.

LIEUTENANT-GENERAL SIR ALFRED KEOGH, G.C.B., on relinquishing the post of Director-General of the Army Medical Service, has been appointed by the King to be a Companion of the Order of the Companions of Honour for services in connexion with the war. The Order, which was instituted last year, consists of one class only. Sir Alfred Keogh is the twenty-first Companion and the first member of the medical profession to receive this honour.

AMONG the fifteen candidates who have been selected by the Council to be recommended for election into the Royal Society are three members of the medical profession: Dr. Charles Bolton, Physician to University College Hospital; Surgeon H. B. Guppy, R.N. (retired); and Dr. Thomas Lewis, cardiac pathologist and assistant physician to University College Hospital. Of the consulting physicians, physicians, and assistant physicians to University College Hospital four are already Fellows of the Royal Society. Six physicians on the staff of one hospital holding this distinction must constitute a record.

Medical Notes in Parliament.

The Medical Treatment of Conscientious Objectors.—In the House of Commons on February 28th, in Supply, a debate was initiated by Mr. Whitehouse, raising amongst other questions the treatment of conscientious objectors. Sir George Cave, in his reply, said that there had been more than 5,000 of these men in prison from time to time. The total number of deaths in prison was two, both due to sudden and severe attacks of pneumonia. In both inquests were held, and in both the jury found a verdict of death from natural causes, adding a rider in each case, wholly acquitting both the prison doctors and the prison authorities of any neglect or want of care. The total number of deaths among the men in the camps, of whom there must have been somewhere near 4,000 altogether, was 8, or 2·5 per 1,000 per annum, and he would be very much surprised to learn that that was not a very satisfactory figure even as regards men of this age. Dealing with a specific case mentioned by Mr. Whitehouse which had been transferred from Dartmoor to a camp and had died there of diabetes, it appeared that sugar was not found in the urine until a day before his death. The case appeared to have been an unusual instance of acute diabetes. A medical record was always sent with a man, and on leaving Dartmoor he was medically examined and a report made showing what kind of work he was fit for. Special inquiry into what was called the strike of conscientious objectors at Dartmoor was made by Major H. Terrell, M.P., who heard evidence and statements from the conscientious objectors as to the man who died of diabetes; the findings of the coroner's jury seemed to have been correct. The number of conscientious objectors who had become insane was 13; in every case there were pre-existing causes, and the insanity was due neither to the conviction nor to the treatment. Of the 13 men mentioned, 12 were at once removed to asylums; the other was handed over to the care of his wife. Arrangements had been made with the War Office by which, if a prison doctor gave a certificate showing that a man was unfit for military service, it was accepted as conclusive. Every such case was reported to him, and he had directed the release of 28 such men. During the debate, Major Terrell gave an independent account of his visit to Dartmoor. The complaints he had met with were that the doctor had not certified men for discharge early enough, and that in certain instances he acted harshly. One specific case made by the secretary of the men's committee was as to a man who was insane, and was put into a padded room; the men were asked to take charge of him, but refused; the patient was then sent home and discharged; it was understood that he was now in an asylum. Another complaint was that a masseur was not provided at Dartmoor for two men who had met with accidents. He said that every complaint was investigated, and if there was any justification the matter was rectified.

R.A.M.C. and the Air Force.—Colonel Gibbs has stated that the transfer or attachment of R.A.M.C. officers could not be carried out until the actual formation of the Air Force. All steps were being taken to complete the arrangements for the medical care of the new force.

Sterilized Tuberculous Meat.—Mr. Clynes stated that he was aware that in most Continental cities carcasses slightly affected with tuberculosis were sterilized and used for human food, and that a certain amount of such meat was being so treated in Scotland. The advisability of extending this method was under consideration.

Tuberculous Discharged Men.—In reply to Major Davies, Sir A. Griffith-Boscawen stated that the Ministry of Pensions had no power to pay the expenses of treatment of discharged disabled men suffering from tuberculosis so far as provision is otherwise made for them. Arrangements had, however, been made to defray the cost of treatment in advanced cases, and in early cases sent for prolonged treatment and training to farm colonies. The insurance authorities had also been assisted to provide additional grants-in-aid to secure preferential treatment generally for discharged men. With regard to a substantial proportion of the men it was incorrect to say that they were not suffering from the disease when they entered the army but had contracted it during the period of military service.

Maisons Tolérées in France.—In reply to Mr. Lees Smith, on March 5th, Mr. Macpherson said that, as far as his information went, the question of placing *maisons tolérées* in France out of bounds did not arise unless British troops had been misconducting themselves under circumstances which in the interest of discipline rendered it necessary to place such institutions out of bounds.

A LINNEAN SOCIETY has recently been established in Sweden, the object of which is to diffuse information as to Carl Linné or Linnaeus (1707–78). In fulfilment of this purpose the society will publish writings of the famous naturalist and his pupils; throw light on the personality of the man from modern points of view; draw up a catalogue of all known memorials of him and his work, and found a complete Linnean library. The president is Dr. Tycho Tullberg, a lineal descendant of Linné.

THE WAR.

SECOND REPORT OF THE COMMITTEE ON PYREXIA OF UNKNOWN ORIGIN AND TRENCH FEVER.

THE DIAGNOSIS OF P.U.O. FROM ENTERIC.

THIS question was, as stated in the first report (BRITISH MEDICAL JOURNAL, January 19th, 1918), one of the objects which the Committee set before itself. That report dealt with 170 consecutive cases in which that diagnosis was purposely not made. The next 200 cases form the material of the present report. The clinical examination has been in the charge of Captain Horsley Drummond; the pathological has been carried out by Captain W. H. Perkins, who was specially detailed for this purpose. Their report was, with a few emendations, adopted by the Committee, which has throughout been in constant touch with the work.

The clinical examination of these cases, in addition to a careful record of symptoms, signs, temperature and pulse, has included also observations on blood pressure, on the atropine escape, and in a few cases on the cytology of the blood.

On the pathological side cultures have been made from the blood in all cases admitted at a sufficiently early period of the disease, and while the patient remained in hospital specimens of stools and urine have been bacteriologically examined twice weekly. The agglutinin titre has been determined at least thrice in every case.

The diagnosis of enteric fever in former days rested upon the clinical symptoms, the recovery of the organism, and the formation of a specific agglutinin in the blood, which was shown by Widal's test. The introduction of prophylactic inoculation has rendered the diagnosis much more difficult.

Certainty can only be attained by the recovery of the organism. But since inoculation against typhoid, and especially since the triple inoculation now in use has been practised, experience has shown that in only about 40 per cent. of cases which (1) clinically appear to be enteric, or (2) give the agglutinin reactions of enteric, or (3) afford evidence of both kinds, can the organism be recovered from the blood or excreta, even though the former be examined early and the latter repeatedly. This clinical experience has been confirmed by *post-mortem* evidence, for the characteristic lesions have been found, though the organism could not be recovered.

On the other hand, the mere presence of agglutinins is no longer of the same cogency, since they remain as a product of prophylactic inoculation. In the course of an enteric fever, however, there is an increase of the agglutinins and a consequent rise in titre, which reaches its maximum about the third week of the disease. This rise and a subsequent fall of titre to the normal level constitute the "agglutination curve," which has now been invested with great importance in the diagnosis of the enteric fevers.

In the present series of 200 cases the agglutination test as an aid in diagnosis has been utilized in all, the method adopted being that associated with the name of Professor Dreyer.

Specimens of blood from all patients have been examined at intervals of four days, and the agglutinins for typhoid, paratyphoid A and paratyphoid B quantitatively determined. The technique elaborated by Professor Dreyer has been followed in all particulars. Readings have been recorded after immersion of the agglutination tubes for two hours in the water bath at 55° C. and controlled by a further reading at the end of twenty-four hours. The titre of the serum at which standard agglutination occurs has been arrived at by means of Dreyer's interpolation table, and the results of the tests in the cases recorded in Table II are expressed in standard agglutinin units.

It may be stated at once that in none of the 17 cases there recorded has an organism been isolated from blood, faeces, or urine. From the pathological standpoint the diagnosis has been arrived at solely on the results of the agglutination test.

It must be remembered that the practical value of this test as a diagnostic measure has been much questioned. It has been asserted that febrile diseases other than enteric may influence the production of agglutinins for typhoid and the paratyphoid organisms; but in the present series of 200 cases over 90 per cent. fail to show that agglutinin response which is characteristic of enteric infections. The results of the clinical examination of these cases have been recorded in Table I.

The first 8 cases are those which to the clinician most closely suggested an enteric infection—those which, before the results of the agglutination test were available, he viewed with greatest suspicion. The remaining 9 cases

TABLE I.—*Summary of Clinical Signs and Symptoms met with in Seventeen Cases of Obscure Fever.*

No. of Case	General Appearance.	Symptoms.			Class.[1]	Fever.	Pulse.[2]	Tongue.	Spleen.	Spots.
		Headache.	Pains.	Vomiting.						
1	Well	Chiefly morning	Not marked	1st day	C	10 days	Higher	Fairly clean	Large throughout	Present
2	Well	Chiefly morning	Very slight	1st day	C	9 days	Followed T.	Slightly furred	Large throughout	—
3	Toxic	Not marked	Severe in legs	—	C	23 days	Higher	Furred	—	Present
4	Well	Slight	Slight	—	C	8 days	Followed T.	Furred	Large throughout	Present
5	Toxic	Chiefly morning	Very slight	—	C	15 days	Higher	Furred	Large throughout	—
6	Toxic	Slight	Not marked	—	C	19 days	Followed T.	Dry and red	—	Doubtful
7	Toxic	Marked	Not marked	2nd day	C	13days, swinging type	Lower	Furred	Enlarged 12th day to evacuation	—
8	Toxic	Marked	None after onset	—	C	14 days	Followed T.	Furred	Slightly enlarged 4th to 13th day	Present
9	Well	Very slight	Not marked	—	C	8 days	Followed T.	Dry and red	Slightly enlarged adm. to 17th day	—
10	Toxic	Very slight	Very slight	—	B	Low, irregular	Higher	Furred	Enlarged 3rd to 20th day	—
11	Anaemic	Only at onset	Slight	1st day	B	Normal on 4th day	Slow	Furred	—	—
12	Toxic	Only at onset	Severe	—	A 1	Typical relapse 7th day	Followed T.	Furred	Large 4th to 14th day	Present
13	Well	Only at onset	—	—	C	8 days	Followed T.	Slightly furred	Large 4th to 21st day	Present
14	Toxic	Very slight after onset	Not marked	1st day	A 2	Relapses on 5th, 8th,12th,17th days	Higher	Dirty	—	—
15	Well	Very slight	Very slight	4th day	C	6 days	Followed T.	Furred	Enlarged 8th to 26th day	Preson
16	Flushed	Slight	Slight	—	A 2	Relapse 7th day	Higher	Furred	—	—
17	Well	Chiefly morning	Not marked	—	C	9 days	Followed T.	Fairly clean	Enlarged 8th to 59th day	Present

Diarrhoea as a symptom occurred in one case only (No. 8)—slight at onset.

[1] For classification see first report.
[2] "Higher" and "lower" mean higher than would correspond to the T., allowing a pulse of 80 for T. 99°, a pulse of 90 for T. 100°, and so on.

TABLE II.—*Showing the Results of Agglutination Tests in Seventeen Cases of Obscure Fever.*

No. of Case.	Atropine Escape.	Blood Pressure (mm. Hg).	Leucocyte Count.	Agglutinins (Standard Agglutinin Units).				Diagnosis.
				Day of Disease.	T.	A.	B.	
1.	Test positive; two records: (1) E. = 8 (2) E. = 6	(i) 115 (ii) 125	—	8	7	40	13	Paratyphoid B.
				12	37	90	120	
				16	32	70	147	
2.	Test negative. E. = 41; 14th day.	(i) 145 (ii) 125	—	8	20	0	78	Paratyphoid B.
				12	18	0	113	
				16	16	0	216	
3.	Test positive. E. = 8	140	—	9	18	8	7	Paratyphoid A.
				13	31	8	13	
				17	36	8	20	
				21	35	39	20	
4.*	Test positive; two records: (1) E. = 11 (2) E. = 13	(i) 95 (ii) 115 (iii) 115 (iv) 120	4,000	8	47	35	129	Group infection.
				12	53	46	147	
				16	61	60	176	
				20	36	46	156	
5.	Test positive; three records: (1) E. = 14 (2) E. = 16 (3) E. = 6	(i) 125 (ii) 145 (iii) 135 (iv) 145	—	8	32	23	4	Group infection.
				12	37	114	56	
				16	65	137	78	
				20	32	78	44	
6.	Test positive. E. = 10	(i) 160 (ii) 145	—	8	44	33	64	Paratyphoid B.
				12	44	30	160	
				16	44	21	113	
				20	36	40	67	
7.	—	—	5,000; 4,000; 4,000; 7,000; no parasites found	8	77	2	30	Paratyphoid B.
				12	61	3	90	
				16	61	6	130	
8.	Test positive; two records: (1) E. = 16 (2) E. = 12	128	—	8	24	60	4	Group infection.
				12	61	160	6	
				16	61	190	32	
9.	—	125	—	8	84	47	78	Typhoid.
				12	145	90	160	
				16	169	100	90	
				19	245	90	90	
10.	—	(i) 112 (ii) 105 (iii) 120 (iv) 120	—	8	6	0	20	Typhoid.
				12	18	0	88	
				16	80	0	26	
				20	70	0	22	
11.*	Test negative. E. = 34; 10th day.	—	5,000 10,000	11	83	70	103	Group infection.
				15	107	116	103	
				19	122	101	130	
12.*	—	(i) 115 (ii) 130	—	7	190	13	68	Typhoid.
				11	280	17	68	
				15	314	13	68	
				23	280	8	68	
13.	Test negative. E. = 22; 13th day.	(i) 105 (ii) 98	7,000	10	16	18	5	Group infection.
				17	28	20	7	
				21	33	34	10	
14.	—	(i) 110 (ii) 130 (iii) 130	—	8	40	30	5	Paratyphoid B.
				12	33	30	18	
				16	33	25	32	
				20	54	22	44	
15.	Test negative. E. = 26; 18th day.	(i) 120 (ii) 128	2,000	12	47	51	20	Group infection.
				17	70	60	25	
				21	55	60	20	
				25	36	51	9	
16.	—	(i) 105 (ii) 110	—	8	23	35	14	Group infection.
				12	44	43	26	
				16	70	70	30	
17.	Test negative. E. = 28; 21st day.	(i) 100 (ii) 110	—	8	15	9	9	Paratyphoid B.
				12	10	15	44	
				16	10	15	82	
				20	9	14	50	

N B.—All the patients referred to in the above table had received a triple (T.A.B.) vaccine.

* In Cases 4, 11, and 12 the serological evidence was considered insufficient to warrant a diagnosis of enteric, but as doubt arose they are quoted in full. Case 12 is important, as it was a case of Class A 1 (see previous report) with a typical relapse on the seventh day.

presented no features which clinically differentiated them from the many other cases of obscure fever which have come under observation, and which the pathologist on the results of the agglutination test regarded as free from enteric infection. Here it may be noted, moreover, that in many of the cases in which the agglutination test failed to reveal any evidence of enteric infection the clinical picture more closely simulated that of enteric fever than it did in the 9 cases above mentioned.

It may, perhaps, be necessary to consider briefly the cardinal signs and symptoms of enteric infection as met with at the present time amongst triply inoculated men before referring in detail to those presented by the 17 cases.

A continued fever of a few days' duration, a slow pulse, an enlarged spleen, and a few spots, headache, the toxic look, and a furred tongue, with, perhaps, some abdominal distension or tumidity, are all more or less constantly met with. None of the 200 cases under observation have presented any abdominal signs or symptoms, but all of the other phenomena mentioned above have been recorded many times among those cases in which no pathological evidence of enteric infection is forthcoming.

In a recent report of the P.U.O. Committee attention has been drawn to the types of temperature now met with in these cases of obscure fever, and the frequent occurrence of an enlarged spleen and the presence of spots has been recorded.

In Table I a summary of the clinical signs and symptoms met with in connexion with these seventeen cases is presented, and the temperature charts show that there is no uniformity in the course of the pyrexias they depict, every

type of chart recorded in the previous report being represented.

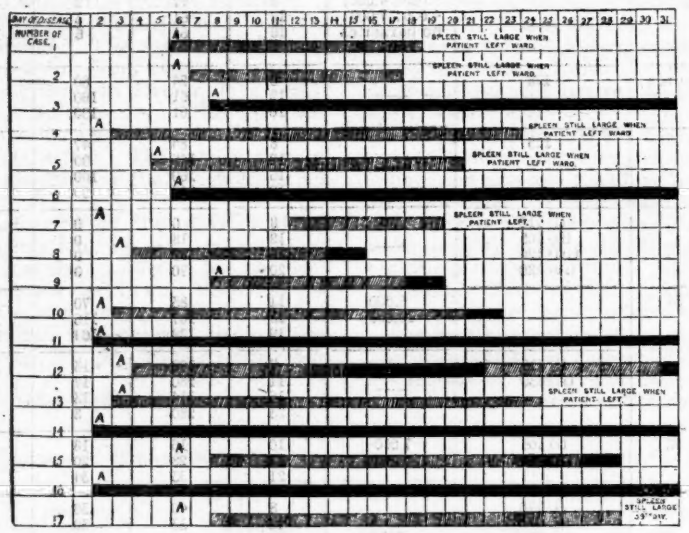
The pulse was noted to be regular in all cases, and tended for the most part to correspond with the rise and fall of the temperature; in three cases it was slow, but in the majority it remained at a proportionately higher level than the temperature.

Enlargement of the spleen (palpable spleen) was found in 12 of the 17 cases. The spleen was described as being on the whole larger than that commonly met with in most cases of trench fever, but in a few undoubted cases of the latter disease a spleen equally large and as persistent has been noted. A chart is appended indicating the onset of the splenic enlargement, and its duration whilst under observation.

Spots were detected in 8 cases, and appeared chiefly on the abdomen and the sides of the chest. They were fleeting in character, and apparently identical with the type of spot which is frequently seen in many cases of obscure fever. These spots differ in several particulars from the spots commonly associated with typhoid infections. The latter are described by Osler as

> hyperaemic spots which appear from the seventh to the tenth day, usually at first upon the abdomen. They are slightly raised, flattened papules which can be felt distinctly by the finger, of a rose-red colour, disappearing on pressure, and ranging in diameter from 2 to 4 mm. They come out in successive crops, and after persisting for two or three days they disappear, occasionally leaving a brownish stain.

The spots observed in cases of obscure fever vary in number from three or four to 200 or more. They appear as early as the second day or as late as the third or fourth week of the disease, and are found usually on the abdomen, chest, or back. They are pink in colour, are not raised above the surface nor palpable, and disappear in twenty-four hours or less. They vary in size, but are commonly larger than the typhoid spot. Their outline is less regular, and they disappear on pressure.



Shaded lines indicate enlarged spleen. Black lines indicate no splenic enlargement. A = Day of admission.

All the 17 cases complained of *pains in the head*, for the most part confined to the frontal region and the back of the eyes. Persistent morning headache was a feature in 4 of the cases—a symptom by no means common in cases of trench fever unless a relapse is about to take place later in the day.

Nine of the patients were *drowsy and toxic looking*, and in 6 cases the toxaemia persisted sufficiently long to warrant a provisional diagnosis of enteric fever being entertained. Many cases of trench fever when seen early present a distinctly toxic appearance, but this they rapidly tend to lose.

In 15 cases the *tongue was furred*, and in 2 it was described as being red and "beefy" looking. In no case did the tongue remain furred for long. The marked *pains in back and shins*, which are common in trench fever, were only persistent and severe in 2 cases. All but one of the cases complained to some extent of backache and shin pains, but on the whole their occurrence was not a prominent feature of these cases.

Assuming for the moment that these 17 cases were, as shown by the agglutination test, cases of enteric fever modified in their severity by triple inoculation, and reviewing the clinical observations made on them, it becomes obvious that none of the signs and symptoms recorded, singly or in combination, are in any way characteristic of the disease, and that therefore a diagnosis of this condition based entirely on clinical observation is impossible. How, then, can an enteric infection be differentiated from the many closely related obscure fevers?

Much has been written of the value of the *atropine test* associated with the name of Major Marris; more remains to be written when it has been more widely applied by many different observers. Its results in the few cases in which it has been applied in this investigation may be briefly noted. The test was applied in 11 of the 17 cases and was positive in 6 (54 per cent.). The test made on 58 other pyrexial cases in which the agglutination test proved negative was positive in 12 cases (20 per cent.).

The value of the agglutination test as a diagnostic measure may be once more considered. An experience of several hundred cases of pyrexia of unknown origin justifies the conclusion, based on clinical observation, that the vast majority are not due to an enteric infection. A large proportion of them can be identified with that relapsing type of fever which has been described as "trench fever."

In 1915, when McNee and Renshaw, and Hunt and Rankin investigated very many cases of this disease for evidence of enteric infection, they were dealing entirely with a disease as it appeared in men who had received a typhoid vaccine only. In such cases a single agglutination test is sufficient to determine the presence of paratyphoid infection, as the production of any agglutinins for paratyphoid A or paratyphoid B is sufficient evidence of infection by these organisms, provided that a standardized agglutinable culture is used in making the test.

At the time of their observations, therefore, the diagnosis of paratyphoid fever was a matter of extreme simplicity and precision, but in the large number of cases they examined they found no evidence of its occurrence. Their conclusions, based on an agglutination test less complex and more definite than that of the present time, accord very much with, and confirm, those that have been arrived at in the present investigation.

There are those who may remain unconvinced by the results of the agglutination test in the 17 cases attributed to enteric infections, and would maintain that the rise in agglutinins shown in Table II is not sufficient evidence of infection.

It may be pointed out that while these cases of obscure fever were under examination, cases more toxic and more severely ill were entering the isolation division of the hospital as cases of "suspect enteric fever." Such cases were investigated in exactly the same manner as were the 17 cases referred to above.

In some of those cases from which the infecting organism was isolated the result of the agglutination test, though perfectly definite, was no more characteristic than many of the results depicted in Table II, and in some was even less striking.

Conclusions.

1. Of 200 cases admitted under the diagnosis of P.U.O. or trench fever, 7 or 8 per cent. were proved on serological evidence to be enteric.

2. While in hospital the clinical symptoms of these cases were no more distinctive of enteric than those of many others in which the serological evidence was negative.

3. Bacteriological evidence was never obtained.

References.

[1] Hunt and Rankin, *Lancet*, November 20th, 1915. [2] McNee, Renshaw, and Brunt, BRITISH MEDICAL JOURNAL, February 12th, 1916.

PUBLIC HEALTH APPOINTMENTS DURING THE WAR.

We have received from the honorary secretaries of the Society of Medical Officers of Health a copy of the following resolution, passed by the council of the society at its last meeting (January 18th, 1918):

> That the Society of Medical Officers of Health deeply regret that local authorities have made many *permanent* appointments since August, 1914, in the Public Health and School Medical Services. That this society earnestly deprecates such a course being approved by the Local Government Board or the Board of Education, as it is unfair to those men now absent on war service and so penalizes patriotism; further, it is not in the public interest that these responsible posts should be permanently filled at a time when the competition is restricted, and the most able and suitable young men are unable to apply.

A second resolution requested this and certain other journals to refrain from advertising any posts in the Public Health and School Medical Services, except those that are to be filled for the duration of the war, or until six months after the conclusion of peace.

The resolutions are, we are informed, intended to apply to both women and men.

The point raised in the above resolution has not escaped the attention of the British Medical Association. On July 4th, 1917, a letter was addressed to the Local Government Board recalling the terms of the circular issued by the Board to local sanitary authorities in May, 1915, urging them in connexion with appointments of medical officers to endeavour as far as possible, by rearrangement of duties among other officers, to avoid making any fresh appointment during the period of the war, or, failing that, to arrange for the work being carried on for the period of the war by practitioners engaged temporarily. After expressing the appreciation with which the Association and the profession generally had regarded the attitude thus taken up by the Board, the Association inquired whether certain then recently made appointments had been sanctioned as permanent. Two specific appointments believed to be permanent were mentioned, and the Local Government Board, in a reply dated July 16th, stated that these two appointments had been sanctioned permanently by the Board, the one having been made on July 8th, 1915, and the other on January 4th, 1916. The Board, however, added that about the middle of January, 1916, it had limited the sanction of appointments of medical officers of health to the period of the war and had continued that practice since. The matter will be further considered by the Public Health Committee of the British Medical Association at its next meeting.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Captain J. T. Heffernan, R.A.M.C. (temporary).
Captain F. W. Tidmarsh, Canadian A.M.C.
Captain H. C. Trumble, Australian A.M.C.

MEDICAL STUDENT.

Hendry, P. G., Gunner, Royal Garrison Artillery, third son of the Rev. P. G. Hendry, of Paxton, Berwickshire, medical student, Edinburgh University, accidentally killed, February 6th.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on March 4th, contains a list of rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced later in the *London Gazette*. The following medical officers are included in the list:

Bar to the Military Cross.—Temporary Captain G. L. Thornton (M.C. gazetted January 1st, 1918).

Military Cross.—Temporary Captain R. D. Bell, R.A.M.C.

A bar to the D.C.M. has also been awarded to a non-commissioned officer of the A.A.M.C., and the D.C.M. to nine non-commissioned officers and two privates of the A.A.M.C., and to eight non-commissioned officers and two privates of the R.A.M.C.

The following officers of the R.A.M.C. are included in a further list of names recommended for distinguished and gallant service and devotion to duty in the dispatch from the Field-Marshal Commanding-in-Chief the British Armies in France dated November 7th, 1917: Temporary Captains H. D. Field (died of wounds), and K. T. Limbery (killed).

The names of the following officers are as now stated and not as notified in the list of mentions in dispatches published in the Supplement to the *London Gazette* of December 24th and December 28th, 1917 (BRITISH MEDICAL JOURNAL, January 5th, 1918, p. 32): Captain (Acting Lieut.-Colonel) C. S. Brebner, M.D., R.A.M.C.; Captain E. O. Watson, A.A.D.C.

England and Wales.

THE TREATMENT OF TUBERCULOSIS.

At the meeting of the London Insurance Committee on February 28th it was stated that 459 persons were receiving sanatorium treatment, and 357 awaiting it. Owing to the large number of discharged tuberculous soldiers requiring residential treatment, the Committee was finding considerable difficulty in obtaining accommodation; about 120 ex-soldiers were in the sanatoriums, and 140 on the waiting list. Dr. Noel Bardswell, the Committee's medical adviser for sanatorium benefit, suggested that a number of country houses should be secured and adapted to the requirements of small sanatoriums. The policy had been reluctantly adopted of shortening the average length of treatment in a sanatorium instead of exercising greater rigour in the selection of cases for benefit; the condition of affairs was still far from satisfactory. The Committee resolved that extra nourishment should be given as a part of domiciliary treatment of tuberculosis, only with the approval of the Committee's medical adviser and only to patients who were awaiting admission to an institution, or who had recently been discharged and were returning to employment.

MILK FOR CHILDREN AND MOTHERS.

The Local Government Board has issued a circular letter to county councils and sanitary authorities with reference to the Milk (Mothers and Children) Order, February 8th, 1918, the effect of which was stated in the JOURNAL of February 23rd, p. 242. The letter calls the attention of medical officers to the importance of doing nothing to favour the abandonment of breast feeding. The quantity of milk which may be ordered to be supplied at less than cost price in ordinary cases has been determined by the Food Controller as follows:

(*a*) For children under 18 months, not more than one and a half pints daily. (*b*) For children between 18 months and 5 years, not more than one pint daily. (*c*) For expectant and nursing mothers the quantity specified by the officer referred to in this paragraph. If dried milk or preparations of milk are used the quantity should be such as would, when properly reconstituted, approximate to the quantities of fresh milk given above.

The definition of "necessitous cases" is left to the discretion of the authority, but it is stated that in some districts a scale has been adopted, based on the income of the family, after taking into account the number of children. The Ministry of Food notifies that it has purchased a large quantity of full cream dried milk suitable for infant feeding, and a quantity of half cream dried milk, and is prepared to receive application from medical officers of health, infant welfare centres, and other similar institutions, for a supply at cost price. In arranging dinners for expectant and nursing mothers the local authority must act in consultation with the Local Food Committee in respect of any food which is subject to an order of the Food Controller or of the committee.

Scotland.

EARLY TREATMENT OF MENTAL DISTURBANCES DUE TO WAR STRAIN.

In his report for 1917 on the Royal Edinburgh Mental Hospital, Morningside, Dr. George M. Robertson has a story to tell very similar to that he told last year. There is no evidence that since the outbreak of the war the amount of insanity has increased, and among the working-class population in the district from which patients are drawn by Morningside there has been a decrease, most

marked in regard to men, and mainly due to the absence of so many of the younger on military duty. The strain of the war has been the exciting cause of much insanity among them, but the vast majority are being dealt with by the military authorities. Among women, though there have been many cases of mental breakdown from excitement, overwork, worry, and anxiety, on the whole the strain produced by the war has not resulted in an increased amount of insanity. It is suggested that the higher wages earned and the separation allowances regularly received have relieved domestic worries and uncertainties. Alcoholic excess was assigned as the direct or exciting cause in 15½ per cent. of the male admissions—slightly less than the average for the seven years before the war. As to alcoholic excess as an indirect or predisposing cause among men, it appeared that the legislative restrictions upon the sale of alcohol were mainly to be credited not only with the slight improvement which has taken place, but with the defeat of the operation of the rule that increased wages are associated with an increase in drunkenness. With regard to women, the amount of insanity attributed directly to alcoholic indulgence was under 3 per cent., or about one third of the average for the seven previous years.

In a section of his report dealing with shell shock and war strain Dr. Robertson pointed out that the most marked nervous disorders were least frequently met in the firing line. Emotional disturbances and consequent states of confusion might occur there, but they were evanescent. If they were followed by an interval of calm, known as the "phase of contemplation" or the "period of meditation," then the more marked disorders might develop. If taken in hand at once close to the firing line they rapidly vanished under the influence of suggestion. If allowed to become established as a habit, the cure became much more difficult, but the same methods were ultimately successful at the base. Dr. Robertson said that in what he termed the incubation stage the mind, owing to a morbid suggestibility following on the emotional disturbance, instinctively but involuntarily fastened on some idea which expressed itself in a nervous disorder—loss of voice, or hearing, or of the power of speech, or difficulty of breathing, or standing, or walking, or paralysis of many kinds.

In discussing the importance of providing facilities for treating mental disorder in its earliest stages, Dr. Robertson said that public opinion was growing more averse to sending persons suffering from short and recoverable attacks of insanity to asylums, "as thereby not only does a certain stigma, unjust though it be, attach to them, but they also require to be legally certified as lunatics." The problem arose at Morningside in connexion with Craig House, a separate establishment for private patients. There was a consensus of opinion that a simple increase of asylum accommodation, by the erection of one or two more villas within the grounds, was not the most desirable way of meeting an urgent want. Therefore the proposal was made to provide nursing homes, not in the grounds, in which patients suffering from the early stages and the curable forms of mental disorder could be separately treated without the necessity of certifying them. A provision of the Scottish lunacy laws enables patients of the classes described to be kept for six months in nursing homes with a view to their recovery, but certain doubts as to the interpretation of the law caused delay. It has, however, been possible at once to make the experiment for officers suffering from the more serious effects of shell shock and war strain. With the assistance of the military authorities homes for them were established outside the boundaries of Morningside, but under Dr. Robertson's supervision. He goes on to observe that there is no essential difference between the case of the soldier who becomes insane in the defence of his country and that of a woman who suffers from an attack of puerperal mania, and that it is an injustice not to accord to the civilian privileges similar to those which have been provided for the officer. He draws the following conclusion:

> The medical treatment of mental disease must be freed from all unnecessary legal shackles and indignities. The question is no longer a theoretical one, but an urgent practical one. In view of what has been done for soldiers, medical men will not accept the assertion that the adoption of similar measures is impossible for their patients. It is intolerable that the lives and happiness of people at the present day should be marred by a certain interpretation of an Act sixty years old, suitable for conditions of society which are now non-existent, yet determining present-day views and problems of medical treatment which were unthought of when our forefathers passed the Act. The law very properly is not in advance of public opinion, but it is in a most unwholesome condition when it lags so far behind as do some of the procedures in lunacy.

Ireland.

POOR LAW MEDICAL OFFICERS' SALARIES.

THE medical officers of the Enniskillen union, having been refused an increase in their salary on three different occasions by the board of guardians, tendered their resignations, to take effect from February 19th. The guardians, by thirty-seven votes to seven, decided that they would not consider the doctors' applications until they withdrew their "threatening notice." The result is that, owing to the high-handed action of the guardians, the poor of the Enniskillen union have now no doctor whose duty it is to afford them medical relief, and are altogether dependent for their medical treatment on the humanity and charity of the doctors who resigned because the board of guardians did not consider them entitled to the wage of a farm hand. The Irish Committee of the British Medical Association some time ago took legal advice as to the powers of the Local Government Board to fix the salaries of the Poor Law medical officers. In the opinion of the solicitors consulted there is very little doubt that Section 8 of the Medical Charities Act, as amended by the Local Government Board, 1898, gives the Irish Local Government Board power "when they see occasion from time to time to regulate the amount of salaries or allowances payable to such officers respectively." It is believed that the Local Government Board, in the interests of the sick poor, for whose medical treatment it is responsible, cannot much longer defer interference in order to fix the salaries of Poor Law medical officers. In one Irish union a dispensary doctor for his services may receive £100 a year, whilst in another union, for doing possibly less work, another dispensary doctor may be in receipt of £200 per annum. Even the larger salary of £200 is totally inadequate and, at all times, was much below the working expenses of the average Irish dispensary district with an area of twelve miles square.

LOCAL GOVERNMENT BOARD AND EXTERN PATIENTS.

At a recent meeting of the Dungannon guardians the clerk said that the medical officer had certified that, in his opinion, a patient from Coalisland should be sent to the Samaritan Hospital. The case was developing very seriously, and should have immediate special treatment, and perhaps go through a serious operation. In view of the recent decision in the King's Bench (Dublin) that only destitute workhouse inmates could be sent, at the cost of the rates, for treatment at extern hospitals, the clerk wrote to the Local Government Board, which replied that if the guardians decided to send this woman for special treatment, as recommended by the medical officer, and, if a surcharge should subsequently be made, full consideration would be given to any appeal for remission thereof.

Correspondence.

SANATORIUM TREATMENT OF THE TUBERCULOUS SOLDIER.

SIR,—I agree with your correspondent (March 2nd, p. 272) that it is high time that some really practical and effective scheme for the treatment of soldiers and sailors suffering from tuberculosis should be formulated and put into practice. To be effective, any rational scheme must be, as far as possible, immediate in its effect, continuous in action even for several years, economical and convenient; but, above all, it must be designed so as to benefit the great majority of sufferers. Since sanatorium treatment can never benefit 10 per cent. of the sufferers, responsible authorities must look about for some alternative method. The alternative system must rely upon those discoveries of science which have banished typhoid fever from our armies and prevented thousands of deaths from tetanus.

Most of the critics of the value of tuberculin as a diagnostic and curative agent base their views on second-hand opinion. Tuberculin has never had a fair trial. Surely now is the time for a trial. I dare to say, on the strength of very extensive experience, that the diagnosis of early tuberculosis by specific methods when other methods fail and the treatment of tuberculosis in early and even late stages by various forms of tuberculin will revolutionize our present methods of dealing with the problem of tuberculosis. I ask for such a trial on behalf of these afflicted sailors and soldiers. It will be found that not only will thousands gain some respite from the sad fate that surely threatens them, but even tens of thousands will be restored to relative, and many thousands also to apparently absolute, health. The medical authorities at the War Office would do a great national service by appointing a small committee of experts to consider the problem from this aspect.—I am, etc.,

W. CAMAC WILKINSON, M.D., F.R.C.P.,
Pathologist, Bermondsey Military Hospital.

London, W., March 5th.

GENERAL ANALGESIA BY ORAL ADMINISTRATION.

SIR,—Dr. Gwathmey is so careful in his statements and so modest in his claims that as a rule he leaves little to criticize. In his contribution to the BRITISH MEDICAL JOURNAL of March 2nd (p. 254), however, he makes one statement which is surely too sweeping, when he says:

> A 65 per cent. solution of ether in oil has been used in many thousands of cases of oil ether colonic anaesthesia without any sign of local irritation . . . as has been proven . . . by the fact that no case of dysentery or bloody diarrhoea has been observed.

Dr. Gwathmey may only be referring to cases in his own practice or within his knowledge. He appears to have been fortunate, as I should think there are few hospitals in which this method has been tried that have not had at least one or two cases of post-anaesthetic dysentery and bloody diarrhoea.

I was probably one of the first in this country to give the method a trial, but, whilst fully realizing its value in certain cases, it was the occurrence of these symptoms in one of my earlier cases that led me to reserve its use for very special occasions, with the result that between 1913 and 1917 I did not once avail myself of it.

The oral administration appears to answer very well for painful dressings, but I cannot think it will come into vogue for operations for which patients must be removed to the theatre. What strikes me as truly wonderful is that the analgesia is produced without any preliminary excitement or ill after-effects.

Is it quite certain that this method of analgesia is safer than anaesthesia? We want the results of a few thousand cases for purposes of comparison, say, with open ether.

Finally, I should not feel on perfectly safe ground if I introduced a drachm of chloroform into a patient's stomach. Granted that absorption is regular and slow and elimination constantly going on, well and good; but may there not be individuals who absorb rapidly and fail to eliminate? If so, I can imagine trouble when some 30 or 40 minims were circulating in the blood.—I am, etc.,

London, W., March 5th. G. A. H. BARTON.

TRANSFUSION OF PLASMA.

SIR,—I have been reading with interest recent articles in the JOURNAL on blood transfusion in casualty clearing stations. Apparently one of the chief troubles is the question whether or not the recipient's plasma will haemolyze the corpuscles of the donor.

Surely this difficulty might be avoided by not transfusing the corpuscles at all, but only citrated plasma, which would be easy to keep and easy to give. There is abundant clinical and experimental evidence that it is not the corpuscles that are wanted, but the ideal fluid for keeping blood pressure at its proper level, and the apparent advantage of blood is, no doubt, due to its permanent value in this respect and to its food value. A man apparently dying from haemorrhage is not dying from lack of haemoglobin, else severe cases of anaemia would die long before they do, but from draining away of fluid, resulting in devitalization and low blood pressure.

May I at least recommend a trial of this method, controlled, let us say, by an equal number of whole blood transfusions and an equal number of gum acacia (not less than 6 per cent.) cases?—I am, etc.,

GORDON R. WARD,
Captain R.A.M.C.(S.R.).

Sevenoaks, March 3rd.

THE TREATMENT OF WOUNDS BY FLAVINE.

SIR,—Major Pearson, in the BRITISH MEDICAL JOURNAL of March 2nd (p. 271), in commenting on Colonels Pilcher and Hull's favourable report on 5,000 cases, has summarized his experiences to the effect that "no substantial differences were observed between flavine and the other substances in regard to the control of sepsis." He employed flavine in the form of gauze "wrung out in 1 in 1,000 solution." His results are not surprising in view of the fact that the gauze was wrung out. The "advocates" of flavine have recommended the use of gauze soaked in flavine solution—a very different thing. As regards the point whether flavine should often be intermitted or discontinued in the later stages of wounds, this was suggested in our second report (BRITISH MEDICAL JOURNAL, July 21st, 1917), and has been borne out by the work of Drummond and McNee;[1] see also Browning and Ligat,[2] and Carslaw.[3]—I am, etc.,

London, W., March 2nd. C. H. BROWNING.

SUPPLY OF ARSENOBENZOL DRUGS TO GENERAL PRACTITIONERS.

SIR,—Syphilis is spread very largely by girls who are not prostitutes, and who often do not know that they have been infected. In practice they do not go to the venereal clinics even when they know or suspect that they are infected; they are partly ashamed to go, and then in the provinces the clinics, based as they are on the larger general hospitals, are often a long way off, and the patient not only has to lose a day's work in order to attend, but subjects herself to the malignant gossip of a small ignorant community if she does.

If they consult anybody but that harmful person the prescribing chemist, it is to a private practitioner they turn, but he cannot obtain a supply of salvarsan or its substitutes from the local authority unless he has himself attended a course of instruction at a venereal clinic, or otherwise demonstrates his familiarity with the administration of the remedies by intravenous injection. But, as Colonel Harrison has shown, these preparations can be given with equal efficacy intramuscularly, a method which requires no special skill. What is wanted, therefore, is that remedies for intramuscular use should be supplied by the local authority free of charge to any practitioner for use in cases that would otherwise come under the aegis of the venereal clinic. Along with the "amateur" we must class those cases of syphilis insontium who could not be driven to any public institution. The two taken together constitute a fertile source of infection not being adequately if at all combated by the regulations as they at present stand.—I am, etc.,

Sheringham, March 4th. A. KNYVETT GORDON.

HEALTH AND ECONOMICS.

SIR,—During the war it has been wrong, if avoidable, to use the telephone, telegraph, or parcels post; all are being run at a loss, and to use them is to increase the country's burden. Thus enterprises which in private hands were, and would now especially have been, great national assets have become great national liabilities. In a word State management has wrought national harm out of national good.

In 1912–13 the State undertook the treatment of the poor and of a caste it included in the poor. In four years tuberculous mortality has risen by 12 per cent. The figures do not wholly present the gravity of the case. By 1915, for a population largely reduced by the subtraction of the forces, the absolute number of tuberculous deaths had largely increased. The M.O.H. for Manchester has pointed out that in his district the fatality among the poor began to increase in 1913; it is scarcely doubtful that the mortality among the well-to-do is on the decline; therefore it follows that the process in the Manchester district is a general one, and even more than a 12 per cent. rise must have taken place among the special protégés of the Commissioners.

[1] *Lancet* October 27th, 1917.
[2] Ibid., November 17th.
[3] *R.A.M.C. Journ.*, October, 1917.

It is another lesson, which should surely not have been needed, that whatever, outside its proper province, the cruel, stupid hand of State touches, it blisters. Remember that this rise was predicted. No man can, without bias, compare the wage-rate and tuberculosis curves as far back as we can go, having an eye on the history of the times, without asking himself whether it is not the constructive legislation "for the good of the poor" that is to blame for this dreadful result. All are agreed on the importance of environment—that is, of the economic factor. What is the good of prattling about environment when every remedy you suggest is a blow to the value of wages, that factor in environment which given, involves, which denied, negatives, all other factors? But I think that few realize how sensitive an index of economic conditions is the tuberculosis death-rate. Just as extraordinary falls in the rate reflect Peel's first free trade measures, the repeal of the Corn Laws, the repeal of the Navigation Acts—so all the great wars, sometimes even a group of little ones like the Zulu and Afghan, leave their mark in an upward fluctuation some two or three years after.

It is certain that real wages and tuberculosis mortality are in inverse ratio; equally that wages vary inversely with prices or taxation. As under Walpole, so under the Manchester school, with its corollary Gladstonian finance, wages rose steadily beyond all previous records. Under the latter we know that the tuberculous death-rate fell steadily and so rapidly that had the decline continued till to-day at the same rate the mortality would only have been half of what it is. But after 1896 wages began to fall in value. The mortality still declined, but more slowly. In 1913 the Insurance Act began to be operative. Though it has much work yet to do in that way, it has already lowered the value of wages, probably more than anything since the Corn Laws; the tuberculous death-rate began forthwith to rise.

It needed no great foresight to predict this result; it did and does need an obsession to be blind to its possibility. No one would question that a war which left on the country a capitalized burden of £400,000,000 would affect the tuberculous mortality. But the burden of the Act must be as much as that at the very least; and in its effect on the poor you must add, not subtract, the premiums which would have been paid, Act or no Act: for voluntary insurance increases wages.

Is the Association to stand by and see these men die without criticism or inquiry because, forsooth, it is a politician's matter? As if a doctor should suspect a wife of poisoning her husband and refuse to inquire because he has nothing to do with conjugal relations. Besides, our leaders *are* interfering with politics; when they urge the present formation of a Ministry of Health, they are corroborating the fashionable policy of making the poor poorer, in order to maintain officials who shall inquire into and gloss over the effects of poverty. On men dying of already too many officials, they propose—at this time of all times!—to let loose another horde. Well might Sir William Chance tell them that England was going mad. As representing a science, they have nothing to do with politics: they have all to do with facts. Explain it how you will, *laissez faire* from the public health point of view was a brilliant success, State collectivism is a dismal failure. If the policy of which the National Insurance Act is the supreme expression is really killing off the poor, and the leaders of the Association do not inquire, they have forfeited the right to speak for a profession which has made it its legitimate boast that it has put the public welfare before all other things.—I am, etc.,

Rayleigh, Essex, Feb. 24th. B. G. M. Baskett.

FORMS AND REFORMS.

Sir,—Your article, "Forms and Reforms," in a recent number of the Journal was no doubt intended to be a composite picture. It is, however, a description, almost photographic in its accuracy, of the conditions prevailing in a military hospital in which I served for the greater part of last year. If you had added the want of courtesy displayed by those in administrative authority towards civil practitioners who, at the urgent call of the War Office, had offered their services to the country, the picture would have been complete.—I am, etc.,

March 5th. Late Civil Surgeon.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The Degree Committee of the Special Board for Medicine announce that the work submitted by J. E. M. Mellor, entitled "Research into the habits of flies in relation to the public health," is of merit as a record of original research. The Special Board for Medicine has formulated regulations for the Nita King Research Scholarship on Fevers.

UNIVERSITY OF LONDON.

University College.

The annual report for the year ended February, 1918, shows that whereas in normal times the total number of students (day and evening) amounted to about 2,200, the number last session was 1,240; but of these 121 were members of the naval and military forces for whom special courses were provided, and 159 attended special vacation courses, so that the actual number of ordinary students was 960, of whom 547 were women. The total number of day students registered is 758. This includes 12 refugee students; deducting these, the total is 746, a decrease of 96 in the year, and of 598 as compared with the corresponding date in 1914. The number of medical students shown is 63 (all men, and including two refugee students), but during the year it was arranged to admit women students to the courses for the second examination for medical degrees and of the Conjoint Board. For many years women students have attended the courses for the first examination for medical degrees, but have been obliged to go elsewhere for the remainder of their medical course. Under the new arrangement they can take at the College the medical course up to the second examination—that is to say, the whole of the course given at the College as distinguished from the medical school. Twenty-one women students are attending the medical courses in the College during the present session. The new revised list of past and present members of the College who are taking an active part in one or other of the services connected with the war, containing 2,500 names, will shortly be issued. Of these no fewer than 195 have fallen. The list of honours received is long, and includes one Victoria Cross and a clasp to the Victoria Cross.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Election of Council.

In accordance with the new regulations to enable Fellows of the College beyond the United Kingdom to vote at the annual election, the secretary of the College issued on March 8th a circular letter to the Fellows informing them that a meeting of the Fellows will be held at the College on Thursday, July 4th, at 2.30 p.m., for the election of four Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir W. Watson Cheyne, Bt., K.C.M.G., C.B., M.P., Mr. Bilton Pollard, Sir John Bland-Sutton, and Mr. Walter Spencer. Blank forms of the requisite notice from a candidate of his nomination may be obtained on application to the secretary, and must be received by him, duly filled up, not later than March 18th. A voting paper will be sent by post to each Fellow whose address is registered at the College on Tuesday, April 2nd. We understand that Sir Watson Cheyne will not seek re-election.

The Services.

Territorial Decoration.

The Territorial Decoration has been conferred upon Major H. Legh de Legh, M.D., and Major James L. Loudon, both of the R.A.M.C.(T.F.).

Obituary.

C. R. STRATON, F.R.C.S.Edin.

WILTON.

We regret to record the death on February 22nd, after a long illness, of Mr. C. R. Straton, of Wilton, near Salisbury. He was the son of Mr. Charles Straton, W.S., of Edinburgh and New Brunswick, and was born in Edinburgh in 1842. For some time he followed his father's profession, but afterwards determined to adopt medicine and received his medical education at Edinburgh, obtaining the diploma of L.R.C.P.Edin. in 1866; in 1882 he became F.R.C.S.Edin., and in 1889 L.S.Sc.Durh. He gained distinctions all through his studies, both in law and medicine, and was house-surgeon to Lord Lister in Glasgow, and remained his friend. He joined his uncle in practice at Steeple Langford for a time, and then settled in Wilton, where he enjoyed a large practice and the confidence and respect of the public throughout South Wiltshire. He was appointed

medical officer to the Wilton district and workhouse, holding the former appointment for forty-five years. He was medical officer of health for the Wilton Rural and Urban Districts, and certifying factory surgeon, and was a visitor of the Fisherton and Laverstock lunatic asylums. He was an active member of the committee of management of the Salisbury Infirmary and of the Salisbury Nursing Home, and an organizer of the Salisbury Public Medical Service. He took an active part in the work of the district, was three times mayor of Wilton, was a director of the Wilton carpet factory, and shared in every local enterprise or institution from the diocesan synod to charity organization and the local War Savings Committee.

Mr. Straton was long a member of the British Medical Association and took an active share in its work. He was president of the Southern Branch in 1900 and vice-president of the Section of Public Health at the annual meeting at Sheffield in 1908. He was for many years a member of the Council of the British Medical Association, served on the Parliamentary Bills Committee, and afterwards on the Central Ethical and Insurance Acts Committees.

He had many interests outside medicine and public work. He was a Fellow of the Entomological Society and an authority upon oak galls and gall flies; he translated Adler's book on *Alternating Generations* (1894) from the German and added valuable notes upon English varieties. He gave attention to every department of natural history and for nearly half a century was an indefatigable worker in the South Wilts and Blackmore Museum, acting as curator of natural history. He was a member of the Salisbury Field Club, of the Wiltshire Archaeological Society, and of the Salisbury Microscopical Society. He often lectured upon his favourite subjects, chiefly at the Salisbury Museum, but also at Haslemere.

A piece of work which took him seven years to complete, and one by which his name will always be remembered by historians, is the *Survey of the Lands of William, 1st Earl of Pembroke*, published in 1909 by the Roxburgh Society in two fine quarto volumes. It involved a transcription from the original parchment rolls of the sixteenth century, in the crabbed and contracted monastic Latin of the period, and a translation. He prefixed to it an essay on the life and administration of a great manor, which produced on the reader a very strong impression of his learning, breadth of view, and powers of description.

He married in 1875, but his wife died twenty years later. He leaves four sons, of whom three are either now serving or have served during the war as officers in the R.A.M.C. The fourth, a private, is serving in a garrison regiment.

At a meeting of the Wilton Town Council and board of guardians appropriate tributes to Mr. Straton's memory have been paid. The funeral, which took place at Wilton, was attended by a large number of friends and representatives of various bodies, the British Medical Association being represented by Dr. Harman and the Salisbury Division by Dr. Willcox.

WE regret to announce the death of Dr. GRACE R. CADELL on February 19th at Mosspark, Rumbling Bridge. After obtaining the triple qualification Scotland in 1891 she held the post of surgeon to the Edinburgh Hospital for Women and Children, was consulting obstetrician to the Hospice, Edinburgh, and later became registrar at the New Hospital for Women, London. Dr. Cadell took a keen interest in woman's suffrage, and had been a militant suffragist.

DR. A. HAMPTON BREWER, who died on January 28th, at the age of 75, was one of the oldest and most respected of Hackney practitioners. He received his medical education at St. Bartholomew's Hospital, where several generations of his family had studied, and where his uncle, Dr. Henry Jeafferson, was senior physician. After taking the qualifications of M.R.C.S. and L.S.A. in 1864, and L.R.C.P. in 1865, he acted as assistant for two years to a Wokingham practitioner, and then joined Dr. Jones of Dalston, whose daughter he subsequently married. He soon got together a large private practice, and was long associated with the Provident Department of the Metropolitan Hospital, the success of which was largely due to his energy and enthusiasm. Dr. Brewer had much wished to complete fifty years of practice at Dalston, but about a year before this period was reached his health had failed, and, in deference to medical advice, he retired at the close of 1917, and spent the last months of his life at his country residence in the Isle of Wight. His professional work was his chief interest in life, but he had several hobbies, such as poultry breeding, gardening, and carpentering. In his youth he was a great athlete, and remained to the end fond of sport of all kinds. Once as a student he walked from London to Bristol in four days. Dr. Brewer took little share in politics of any kind, but his opinion on public questions was much sought after and respected. His death is deplored by a wide circle of friends and patients. Five of his six sons joined the army in the present war; two of these took commissions in the R.A.M.C., and the youngest lost his life at Gallipoli.

Medical News.

THE Ministry of National Service has issued revised general directions for the guidance of Commissioners, Deputy Commissioners, and members of medical boards.

THE number of certified midwives who have given notice of their intention to practise within the county of London during 1918 is 554, a decrease of 25 on the number for the previous year.

Lieut.-Colonel Thomas Wallis, M.D., and Colonel J. Arnallt Jones, M.D., have been appointed treasurer and almoner respectively of the new priory of the Order of St. John of Jerusalem, established for the principality of Wales and the county of Monmouth.

THE Minnesota State Pharmaceutical Association has issued a paper on war emergency formulas by Mr. F. A. Upsher Smith, chairman of its committee on dispensing. The paper contains suggestions for economy in the use of glycerin, sugar, and alcohol. The secretary, Dr. E. L. Newcomb, to whom we are indebted for a copy, observes that the recommendations as to the substitution of fresh infusions for alcoholic fluid extracts, tinctures, and elixirs, and the prescribing of salts, such as the bromides, in the form of a slightly flavoured mixture in place of an elixir, would very often tend to benefit patient, physician, and pharmacist.

THE Medical Research Committee has appointed a special committee to consider the methods of manufacture, biological testing, and clinical administration of salvarsan and its substitutes used in this count y, and the results of these, and to propose to the Medical Research Committee specific investigations aimed at improving those methods and results. The Committee consists of Dr. H. D. Rolleston, C.B., temporary Surgeon-General R.N. (chairman), Professor F. W. Andrewes, M.D., F.R.S., Professor Wm. Bulloch, M.D., F.R.S., Dr. H. H. Dale, F.R.S., Lieut.-Colonel L. W. Harrison, D.S.O., R.A.M.C., and Dr. F. J. H. Coutts, Assistant Medical Officer, Local Government Board (secretary). The Committee is arranging to invite the assistance of others who are in a position to offer evidence or advice towards the solution of particular problems arising within the scope of this inquiry.

THE annual reports of the school medical officer for London since 1914, based upon an annual examination of some 200,000 children, have indicated an all-round improvement in the physical condition of the children during the war; that the number of children found at medical inspections to be under-nourished greatly decreased. The results for 1917 show that the improved conditions were fully maintained. During the third term of 1917 the inspection of all the entrant children, which had been discontinued from the beginning of 1916, was resumed, and the results of this term's examinations were the best that had ever been attained; the percentage of children found in a poorly nourished condition was considerably less than half the percentage so found in 1913.

AT a meeting of the Llandudno Season Extension Committee, when Dr. E. R. Woodhouse was in the chair, the possibility of making the place a winter resort was discussed. Dr. Parry-Edwards, County M.O. Carnarvonshire, said that Llandudno had a high average of bright sunshine —1,600 hours a year; in the month of March, the worst at Llandudno, the maximum temperature for eight years was 48° F., the minimum 38°, and the mean 43°; the average rainfall was not high—32 inches. The death-rate was low —11 per 1,000—as was also the infant mortality, 92 per 1,000. He wound up by suggesting that means should be taken for bringing the Trefriw waters to the town. The Trefriw spring in the Conway Valley is a very strong chalybeate water, in which the iron occurs as proto-sulphate.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

LETTERS, NOTES, ETC.

THE following appointments of certifying factory surgeons are vacant: Burghead (Elgin), Newport (Isle of Wight), Fethard (Tipperary).

DR. C. N. FOLEY (10, Tollington Park, N.4) writes to say that he has held the appointment on and off for eleven years of medical officer to the Falkland Isles Co., Limited, and would be pleased to give any information to intending applicants for this post if they would care to communicate with him.

THE NIGHT SCREAMING OF CONGENITAL SYPHILIS.

IN a note (p. 248) reference was made to this subject, which has attracted the attention of many physicians since Eustace Smith first indicated its diagnostic significance. An *x*-ray photograph demonstrated by Dr. Cameron in a recent clinical lecture (*Guy's Hospital Gazette*, July, 1917) affords an explanation of the cause of the screaming in at least some cases. The skiagram was obtained from an infant six weeks old, one of male twins. There was no other sign of syphilis save a slight tendency to snuffles and a little pallor, which became significant when comparison was made with his twin brother, who showed no signs clinically of congenital syphilis, though, like his brother and mother, he gave a positive reaction to the Wassermann test. The mother brought the child for pain in the legs, and it was possible to palpate a thickening near the right knee-joint. The skiagram showed marked periosteal overgrowth. Dr. Cameron spoke of the case as periostitis and epiphysitis of congenital syphilis, or "syphilitic pseudo-paresis." He called attention to the difficulty of appreciating the precise situation of tenderness in a baby, and observed that the mother has generally better opportunities for observation, so that it is well to pay attention to her opinion, if she is sure that the arms or legs are tender on movement.

WAR PHOTOGRAPHS IN COLOURS.

AN exhibition of official war photographs, organized by the Ministry of Information, was opened at the Grafton Galleries, London, on March 4th. It consists for the most part of greatly enlarged colour photographs of scenes on the Western and Eastern fronts. The pictures are strikingly realistic, and illustrate many phases of life, suffering, and death in the battle area. A considerable number have a strong medical interest. We see wounded men being carried on stretchers across a shell-pitted field; British and German wounded lying side by side on stretchers; German walking wounded pouring into an advanced dressing station after the battle of Menin Road; a stretcher case at an aid-post, with his rifle as a make-shift leg splint; a remarkable silhouette of a wheeled stretcher and bearers; foot inspection by the battalion medical officer in a front line trench; a parade of walking wounded at a field ambulance; and several scenes in hospital. There is also a photograph of a shell bursting close to an advanced dressing station, over which floats unheeded the Red Cross flag. Among the more gruesome pictures are large reproductions of dead Germans and of the carcasses of horses beside a desert track. We could wish that the catalogue of this remarkable exhibition had not been composed in the style of the popular illustrated daily, with its mixture of bombast and facetiousness.

THE STERILIZING OF HYPODERMIC SYRINGES.

DR. P. J. FINEGAN (Carlingford) recommends the following method of sterilizing hypodermic syringes, which he learnt from Dr. Rankin of Belfast: The metal fixture for holding the syringe in its case is placed in the upturned metal case cover with 2 drachms of methylated spirit. The metal hypodermic syringe case, three-quarters full of water, is placed on the fixture with syringe and one needle, and the methylated spirit lighted. In a few minutes the syringe is sterilized; if warm water is used 1 drachm of methylated spirit will be sufficient.

EMERGENCY RATIONS OF VARIOUS ARMIES.

THE emergency ration adopted by the United States army about twenty years ago consisted of biscuit, bacon, pea-meal, and coffee, and was calculated to yield 4,110 calories; it included also salt, pepper, and tobacco. We learn from the *New York Medical Journal* that a new emergency ration has been devised composed of wheat flour, meat, and dried milk compressed to about the size of a dog biscuit; some pea-nut butter in a paraffined packet is added, and the whole enclosed in a sealed waterproof wrapper; the weight is about 4 oz., and the nutritive value 2,400 calories. The American army also had a "travelling ration" consisting of bread, canned beef, beans, tomatoes, coffee, and sugar, calculated to yield 2,735 calories. The emergency ration of the French army consisted of biscuit, rice, dried vegetables, meat, soup, salt, sugar, and coffee. It was made up in packages for two days, yielding from 2,130 to 2,515 calories, according as to whether the soup was made with bean or pea-flour. The emergency ration of the German army consisted of field biscuit and tinned meat, preserved vegetables, coffee, and salt. It was calculated to yield 2,766 calories, and each soldier carried two. The emergency ration of the British army used to consist of four cakes of chocolate with some dried milk protein. It was wrapped in vegetable parchment paper and packed in a hermetically sealed tin; the ration weighed 6½ ounces net.

THE OLDEST ENGLISH HOSPITAL.

MR. D'ARCY POWER has published in the *Journal* of St. Bartholomew's Hospital a mid-sessional address he gave last December, which is a kind of historical dream of the hospital, and the best of his in that vein which we remember. If Rahere's foundation was truly a hospital and not an almshouse then it is the oldest English hospital, beating the Angers Hospital founded by Henry II, for which that honour is claimed, by some twenty years or more.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending March 4th:

	£	s.	d.		£	s.	d.
Messrs. Allen & Hanburys	10	10	0	"Beta"	1	1	0
Mr. G. Rammell Footner	10	0	0	Sir Alfred Pearce Gould...	5	0	0
Colonel David Wilkie ...	1	1	0	Mr. E. Spencer Evans ...	0	10	6

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

MEDICAL MEN AND TRIBUNALS.

IN consequence of the passing of the Military Service Act, 1918, the Local Government Board has issued revised and consolidated Regulations and Instructions to Tribunals, which will come into operation on March 11th, superseding all previous Regulations and Instructions. Regulations 23 and 41, which concern medical men directly, are as follows:

23. In the case of any application concerning a duly qualified medical practitioner, other than an application solely on conscientious grounds, made to a local tribunal, the form of application, together with the documents (if any) in the possession of the tribunal relating to the application, shall be sent forthwith to the Professional Committee for which provision is made by Regulations made under the principal Act. The decision of the tribunal on the application shall be in accordance with the recommendation of the Professional Committee, and a certificate of exemption, if recommended, shall be issued accordingly, provided that—

If application is made on conscientious and also on other grounds, the tribunal shall, after receiving the recommendation of the Professional Committee, hear and determine, if the applicant so desires, the application on conscientious grounds in the same manner as an ordinary application for a certificate of exemption made under these Regulations.

41. In any appeal against a decision made on an application concerning a duly qualified medical practitioner the recommendation of the Professional Committee obtained in accordance with Regulation 23 shall, as regards any grounds other than conscientious grounds, be binding on the Appeal Tribunal.

The provisions in the Regulations as to referring applications by medical practitioners to the Professional Committee apply also to the cases of medical practitioners who are attested.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.